NEW WORLDS
SCIENCE FICTION

No. 56

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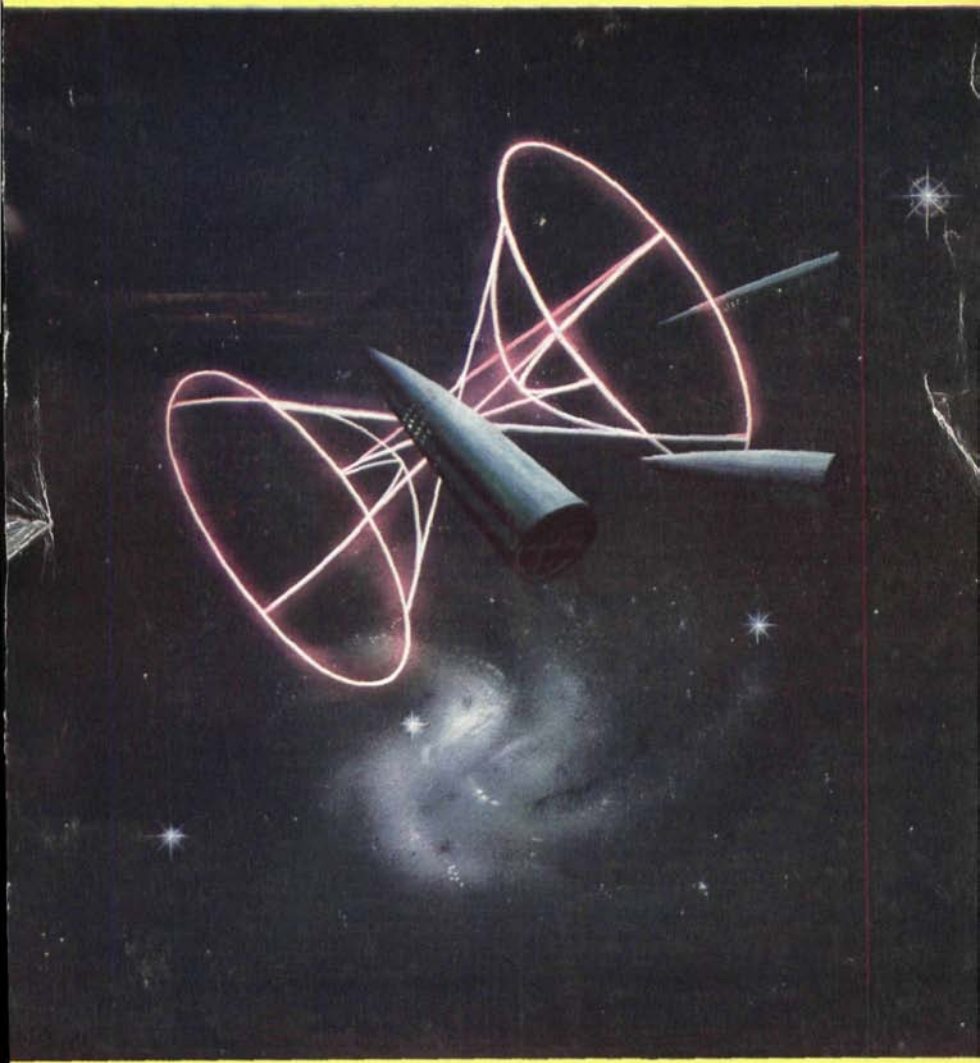

McINTOSH ★ CHANDLER ★ WHITE ★ BRYNING

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NEW WORLDS

PROFILES

Frank Bryning

Queensland

Australia

Francis Bertram Bryning is undoubtedly Australia's foremost science fiction author having first become interested in the *genre* as long ago as 1928 when he bought a copy of *Amazing Stories* and found E. E. Smith's *The Skylark Of Space* inside. From then on he became a confirmed addict and a significant part of his private library consists of a moderate collection of selected science fiction.

Born in Melbourne some 45 years ago he grew up in the Yarra Valley and as a schoolboy became much more proficient in sports and athletics than in general scholastic attainment. However, he says, "I was most fortunate in my parents, whose broad interests and love of books led me naturally into becoming a wide and avid reader. As a boy I was well acquainted with Verne, Wells, Shaw, Bellamy, Butler, Swift, London, Sinclair, Twain, and numerous less eminent authors. Many of them were of progressive and speculative outlook, and some of their works can now be claimed as science fiction."

Guest of Honour at the Fifth Australian S-F Convention which was held in Melbourne on December 8th and 9th at the close of the Olympic Games, he is a journalist by profession, editing a monthly building trade journal. As a freelance he has contributed to many Australian publications over the past twenty years and more recently has had great success in both the American and British markets with science fiction.

He has always been interested in science—its achievements and possibilities—and while at University High School in Melbourne he joined a science club founded by fellow schoolboy Harrie Massey, now known as Dr. H. S. W. Massey of British wave mechanics and nuclear physics fame. More recently, in 1952, he became a founder member of the Brisbane Science Fiction Group, which originated in his home.

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NEW WORLDS SCIENCE FICTION

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S-F and Education

For many years one of the most controversial subjects connected with science fiction has been whether the genre has any educational value whatsoever, or whether like the detective and adventure story it is merely a form of entertainment, not intending to teach its readers anything about scientific matters. Indeed, this argument can be traced back as far as the early 1930's when Hugo Gernsback, founder of modern magazine science fiction, first termed it "sugar-coated science."

Since 1948 the controversy has been discussed in a quiet manner throughout the pages of innumerable sedate literary journals, has been white-washed on the radio and ham-strung on TV—it was the leading question given to Dr. Tom Gold the astronomer, and myself on ITV last March—although quite recently the subject was partially vindicated by Dr. J. Bronowski on BBC TV "Brains Trust" while the rest of the panel groped blindly in the dark at a complete loss as to what the subject matter was about.

It will, I suppose, remain a controversial subject indefinitely, although the crude question "Do you expect to make scientists out of the young people who read science fiction?" no longer applies in this wakening atomic age. Only a person outside the regular reading or writing of science fiction would pose such a stupid question, because neither publishers, editors or writers have ever suggested that the genre develops scientific 'ability.' Undoubtedly, however, it does create an 'awareness' of the fact that we are living in a scientific age, that scientific knowledge is becoming more and more available to the general public through the use of popular articles in the general press, and that with the expansion of modern needs more technicians are being required. Scientific establishments are, in fact, going out of their way to induce and help the youth of today to turn to a technical career.

We know that during recent years more care and accuracy has been put into the writing of good science fiction stories than at any time in the history of the medium. Many of the world's foremost writers of this type of fiction are themselves scientists or technicians by profession, writing science fiction as an interesting and lucrative hobby. Others are professional writers who spend weeks of research checking data in reference books before committing an idea to paper. Even the magazine editors have

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to keep in constant touch with all branches of scientific development to ensure that the authors do not overstep the bounds of credible possibility.

While no reasonably minded person will expect that today's youth by reading science fiction are likely to learn a great deal of science or have their steps directed towards a scientific career, it is reasonable to assume that such logically presented stories in fictional form will whet the enquiring mind of the reader into discovering more about the technological advances we are making in all branches of scientific development.

Science fiction also has a place in the lives of the already technically trained, probably as a form of mental relaxation closely allied to their working life. Obviously not inspirational —no scientist is likely to read a story concerning a Time machine and then sit down and work out the plans for such a machine, but he is likely to enjoy reading about such an improbability after a frustrating day in the laboratory or workshop. Is it so surprising that many doctors, engineers, analytical chemists, radio, radar, and electronics experts the world over relax with science fiction?

I like the comments of author Isaac Asimov, writing in an American technical journal concerning the respectability of brains being a by-product of science fiction. "Scientific research," he writes, "is presented (in science fiction) almost invariably as an exciting and thrilling process; its usual ends as both good in themselves and good for mankind; its heroes as intelligent people to be admired and respected.

"Naturally, science fiction writers do not deliberately go about doing this. If they did it deliberately, the chances are that their stories would play second fiddle to their propaganda and prove quite unpublishable; or if published, quite boring, and thus do more harm than good.

"It merely happens that this sort of thing comes about almost unwittingly. However much a science fiction writer may think primarily of writing a good story and secondarily of making an honest living, he inevitably finds that every so often he cannot escape making intelligence, education, even a scientific career, attractive."

The present generations are growing up fully conscious of the part scientific experimentation plays in our daily lives—science fiction may not be the keystone to scientific knowledge but at least it is the shop window of the world of To-morrow.

John Carnell.

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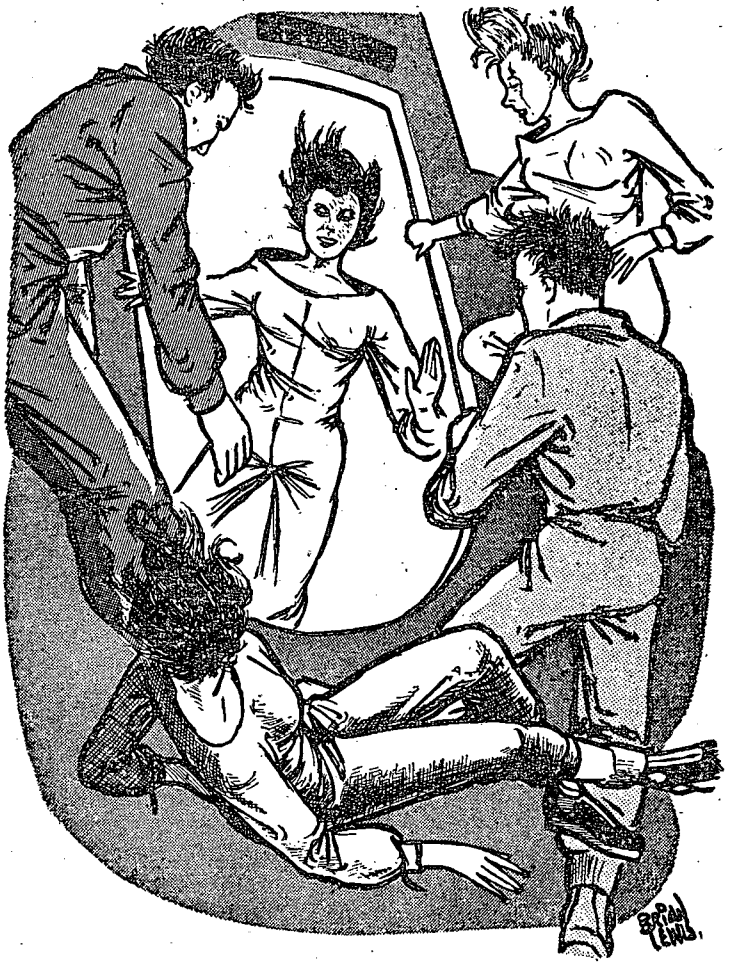

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UNIT

Readers who enjoyed J. T. McIntosh's story "Empath" in the August 1953 New Worlds will find the following story equally as good and based upon a subject somewhat similar in theory—this time dealing with the integration of a number of minds to work as a single unit.

By J. T. McIntosh

Illustrated by LEWIS

I

When A.D. called me on the phone and invited me to lunch I knew he wanted something. I'd known A.D. a long time, quite long enough to know when he was merely being friendly and when he had something up his sleeve.

A. D. Young was something in the U.A., a very important international octopus whose tentacles reached almost all the settlements in the galaxy. What he did in the organisation I didn't know, but I suspected he was something more than a forty-five-year-old office boy. His approach smelled as if he was offering me a job.

I was interested, because at the time I didn't have a job. And I'd reached the age of being concerned over being out of work. Oh, I had the odd thousand or two in my bank account, and if I starved it would be the first time. It wasn't in that way I was worried.

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The trouble is, as you get older you learn more, you get better at things, and you expect more out of life. I was the same age as A.D.—forty-five, unmarried, a high grade executive with no executions scheduled. Twenty years since I'd been happy to take any job that was going at any salary, just for the hell of it, but now I'd got used to four good meals a day and various other things that demand a good fat four-figure income.

At the moment I had no income at all. I shouldn't have told Bentley what I thought of him. Or if I'd told him, I shouldn't have told him so he understood. Or if I'd told him so he understood I should have waited until I was in a position to fire him instead of having him fire me.

I think that makes my interest in A.D.'s proposition clear. I wasn't much interested in the U.A., not at the time. I was interested in anything paying not less than £5,000 a year.

When I saw him, A.D. came straight to the point. "I know you're free, Edgar," he said. "I checked. How about taking a job with the U.A.?"

"The U.A.?" I said, as if I'd never heard of it before.

"Unit Authority," said A.D. helpfully.

"You've got the wrong number, A.D.," I told him. "I'm quite satisfied with myself as I am."

"I don't mean as a Uniteer. I mean as a Unit Father."

I liked the idea. It made A.D.'s very good cigar taste even better. Unit Fathers were very important people. I'd get my £5,000. I showed no signs of my interest, however.

"Don't bother to be coy," said A.D. "You get paid the same whether you need the job or not."

"I don't need the job," I retorted. "And what gives you the idea I'm so concerned about money?"

"Observation," said A.D. drily.

There was no answer to that so I didn't look for one. "What sort of job would my Unit be doing?" I asked cautiously. "And would it be here on Earth or in some God-forsaken hole at the other end of the galaxy?"

A.D. shook his head. "You don't get told that. Your Unit might be running a factory right here . . . or it might be sent to Perryon."

"Perryon," I murmured. "That's certainly a God-forsaken hole, from what I've heard of it."

"I'm surprised you've heard of it."

"Oh, I know this and that," I said. "Know the alphabet and everything." But still I wasn't satisfied. Something still smelled. It wasn't necessarily a bad smell, just a smell.

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"You've got something else in mind, A.D.," I said. "You never waste a stone on anything less than three birds. I like to know what I'm letting myself in for. Come on, give."

"You'd have to know anyway," said A.D., unperturbed. "I know you, Edgar. On the right you carry your wallet, and on the left you carry your heart. You never let one get the better of the other. I understand that. You'll be a good Unit Father. You've got the right mixture of hard-headedness and humanity."

"I weep tears of gratitude," I said. "Now what's the build-up for?"

"My daughter," said A.D. quietly, "is volunteering for a Unit. Today."

"What for?" I asked, astonished.

"That doesn't matter. What does matter is this—I can't stop her, and when she's a Uniteer she won't know who she was before. I may never see her again. I certainly won't be allowed to tell her I'm her father. I won't be able to do anything for her."

He paused. I didn't say anything.

"After Lorraine has volunteered for a Unit," A.D. went on, "she and I will be nothing to each other. I'll be able to pull strings to find out how she's getting on. I may be able to think of some excuse to meet her at the U.A. depot now and then. But that's all. Now do you understand?"

I nodded.

"I won't see you very often either," A.D. said. "But at least I'll know you're looking after the Unit Lorraine will be in. That's something."

"You'll be able to swing that?" I asked curiously.

"Yes."

I paused, thinking it over. I didn't offer A.D. my sympathy. A.D. wasn't the kind of ma[illegible] wanted or needed sympathy.

I had identified all the smells now. "That's the three birds," I ruminated. "One, your old friend is out of a job and you can give him one. Two, you need Unit Fathers anyway. Three, you want someone to keep an eye on Lorraine after she's a Uniteer."

"Four," said A.D., "you don't sell out. You know that if you spread it around that I told you where your Unit was going and fixed things so that my daughter was assigned to a Unit headed by a friend of mine, I'd be due for a bath in boiling oil. But you'll keep it to yourself."

"Okay," I said. "To all four."

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"You'll do it?"

"I'll do it. My wallet has just persuaded my heart—or the other way round."

So we went down to the Unit depot and I became a father.

That afternoon I watched my children coming in. Coming in, not being born. It's time we dropped that metaphor.

I sat with a technician behind one-way glass and watched a psychologist interviewing people. I'd been interviewed too. I'd passed as a Unit Father, *summa cum laude*. They told me I should have been a Unit Father long ago. I told them I'd never happened to meet the right woman. They looked as if they'd heard that one before.

I didn't see A.D. around the place. He was one of the men behind the scenes, apparently. He had certainly pulled the right strings, for Lorraine was the first person I saw interviewed.

I'd met Lorraine once or twice, usually when she was just on the point of dashing off somewhere. We were no more than names to each other.

In fact it was only when I had time for a long, steady stare at her, behind the glass in the U.A. depot, that I realised Lorraine was a beauty. She had the kind of face and figure that had to grow on you before you suddenly realised how lovely the girl was.

Her nose was too small and her forehead too high. She looked too flat until she got excited or angry, and then you saw that she had the usual dimensions after all.

"Now tell me, Miss Young," said the psychologist pleasantly, "just why are you here?"

"Do I have to tell you that?" Lorraine asked, biting her lip.

"No. But we'll find out anyway, in the tests."

She took another bite. Then she looked up suddenly, defiantly. "Well, if you must know," she said, "it's this or suicide."

She expected to shock the psychologist, but she should have known better. In the first place, he was a good psychologist, and in the second, he saw scores of people every week who had come to volunteer for a Unit because it was that or suicide.

He nodded. "Why?" he asked simply.

"I've lost the man I'm in love with," she said.

He didn't look surprised or ask if it was that serious. Obviously it was that serious, or she wouldn't be here. He wasn't necessarily believing what she was saying anyway. It would all come out, as he'd already said, in the tests.

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"We want volunteers, Miss Young," said the psychologist, "but we don't want people who have come here on impulse and will regret it later. If you—"

"I won't go back on it."

"It's not that. You can't. Are you sure that . . . in three months' time, say, you'd still want to do this?"

"In three months' time," said Lorraine bitterly, "I wouldn't be around to volunteer for a Unit."

"When did this happen, Miss Young? I mean, how long have you—"

"We broke up two weeks ago."

"That's a fair time," the psychologist admitted. "If you're quite sure, I can't refuse to accept you."

"I'm quite sure."

After that came the preliminary testing, and I saw most of that too. It took a long time, and after a while the technician beside me went away and left me to watch alone. I was interested because it was Lorraine.

I was wondering how far A.D. had stepped out of line in arranging for me to be the Father of the Unit his daughter was assigned to. Not far, I guessed. Though he'd said if it was found out he'd be due for a bath in boiling oil, A.D. was never that careless. He didn't do things that were going to land him in hot water—or boiling oil.

After all, *he* hadn't passed me as a Unit Father. He'd simply got me to come along, and it happened to be on the day when Lorraine came in to volunteer. If anyone ever complained of string-pulling A.D. would have a good story ready, I knew.

I wondered what he was like as a father. Was it his fault that at twenty-two Lorraine felt her life was a wreck? Perhaps, I thought, but only because she'd been a little spoiled. She'd always had everything she wanted, and so it seemed like the end of the world when a man she wanted didn't want her.

I learned a lot about Lorraine as I watched her being tested by every conceivable psychological test—intelligence, stability, aptitude, personality, psychosomatic, word-association, everything I'd heard of and a few I hadn't.

Then I realised, as I should have done long ago, that all this didn't matter. Lorraine as she was now was going to cease to exist in a few minutes or hours, and the Lorraine I was going to know would only begin to grow after that.

I got up and followed the technician. Lorraine was still doing the exhaustive psychological tests.

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Though it was now late afternoon, the technician told me that I'd see the completion of my Unit before the depot closed for the day. It was open until twelve o'clock, and it did most of its business, so the technician told me, in the evening. People who meant to volunteer for a Unit on a certain day kept leaving it later and later until at last they had to go or leave it until the next day.

The next person I saw being interviewed was Dick Lowson. That wasn't his name, but it was the name he was given later, the name under which I knew him.

Men and women who join Units have to make a clean break with their previous life. They're usually given new names and sometimes even new faces. Lorraine's Christian name wasn't changed, for some reason, but her surname was. She became Lorraine Waterson—not that that matters.

Dick was a tall, thin man of about thirty, with hair going out like the tide. He was moody, dreamy, indifferent.

"How would you describe your problem, yourself?" the psychologist asked.

Dick stared straight at us, gathering his thoughts. I moved uncomfortably. "He can't see us," the technician murmured. "He's just staring into space."

"How many people have you got behind that glass?" Dick asked. He shrugged and turned away. "Doesn't make any difference. Bring them in here if you like. How would I describe my problem—does that matter?"

"Yes," said the psychologist.

Dick shrugged. "All right, I'll try to tell you. I was a boy wonder. Straight A's in every subject, and pretty good outside University too. Plenty of money from spare-time jobs, social success, girls . . . I had six girls on a string when I was fifteen—wonder why I bothered. By the time I was twenty I'd done it all. For seven or eight years I did it all over again, getting less and less fun out of it—making money, climbing on the next man's back, winning games, buying things, selling things. Last three years I haven't bothered doing anything very much. Nothing seems worth while."

He sighed. "Now clean the slate and let me start over again."

The psychologist nodded. "Your IQ's very high," he commented.

"Sure. Aren't I lucky? Everybody wants to be smart. A fundamental error. If you're dumb, things are simple. The smarter you are, the more complicated things get. Are you going to make me dumb?"

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"No. You'll be the brains of a Unit."

"Thanks for nothing."

"And you'll like it."

"Good. What do I do now?"

The psychologist told him what to do now.

In the dark passageway I murmured: "That must be awful."

"What must be awful?" the technician asked.

"Having done everything before you're thirty."

"He hasn't done everything. He just thinks he has."

"Well, it must be awful to *think* you've done everything before you're thirty."

"Neurosis," said the technician. "We'll soon fix that."

"What exactly is this clearing process?"

"We just sponge everything off the brain. Experience, memories, language, neurosis—the lot. That leaves capacity and damn little else. Then we can train them right."

"Sounds a bit inhuman."

"Nonsense. Uniteers are happier, saner, and much more useful than anyone else. Far more than you and me."

"Then why don't we go and volunteer?"

The technician grinned. "Why do Christians stay out of heaven as long as they can?"

I saw a lot of people being interviewed, and naturally not many of them were assigned to my Unit. The depot handled about twenty people a day, four Units.

I'm ignoring those who weren't assigned to my group. I soon forgot the others anyway. All of them, except Lorraine and Helen, got new names later. Perhaps it wasn't worth while changing a name like Helen—there's so many of them.

Helen would have been a very beautiful girl but for one thing. It was a big thing, though.

Her face was less alive than a face on a magazine cover. Her changes of expression were even deader. Smile: pull cheek muscles. Laugh: open mouth, oscillate vocal cords. Frown: corrugate forehead. A robot could have done it as well.

"What do you mean, are the police after me?" she demanded. "Why should the police be after me?"

"All that concerns us," said the psychologist, "is how far they are after you."

He was a good psychologist. He knew what to say to make contact.

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Helen cooled down. "You mean you don't care?"

"Not in the least. After you're cleared you can't possibly have criminal tendencies."

"Why, you louse, are you suggesting I—"

"No, I'm not suggesting anything. How far behind you are the police?"

"A long way. But they might catch up," Helen admitted. "Say, if clearing removes criminal tendencies, how come criminals can't volunteer?"

"They can, after they've served their sentences. We're not allowed to take criminals here as an alternative to prison. If we did, why, anybody could do anything he liked and volunteer for a Unit when he was caught, to avoid the jail sentence."

"I get it," said Helen. "Well, I'm in the clear." She looked thoughtful. "I wonder what I'll be like afterwards?"

"Wonderful," said the psychologist.

"Thanks," she said. "I guess you don't mean it, but thanks anyway."

After Helen came Brent.

Brent was a young, healthy, handsome moron. Society had warped him, but even in his original state he couldn't have been much of an asset to himself or anybody else.

"What good's he going to be?" I asked, rather resenting Brent's presence in my Unit. Lorraine, Dick and even Helen had all had something I could appreciate, but this big, good-looking idiot didn't strike me as valuable material.

"You ought to know," said the technician reprovingly, "that you can't get anything done without a certain amount of stupidity and ignorance."

I looked at him sharply, scenting sarcasm, but the only light where we were was from the room beyond, heavily filtered, and I couldn't tell whether he meant what he said or not.

There was a long pause after Brent. People were interviewed, but the psychologist never made the sign to warn us that the person being interviewed was a possible recruit for my Unit.

"May take a while," the technician whispered. "It's always toward the end that forming a Unit gets difficult. In the beginning anyone will do. It's like putting five cakes in a box. The first four can be almost any size, but the last has to be just the right size and shape."

"How about me?" I asked. "What am I?"

"The box," said the technician.

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I thought of asking why so comparatively little trouble was taken over the Unit Fathers, why all the Uniteers were thoroughly cleared and then trained for weeks, emerging as something in the order of supermen, while the Unit Father, theoretically at least the boss of the whole show, was just an ordinary human being, tested only briefly and given no psychological repair-work at all. However, I didn't have to ask. I could guess.

People are still suspicious of the Units. They use them, but they don't entirely trust them. There's a flavour of inhumanity about the whole system. The public doesn't like being at the mercy of people whose brains have been tampered with.

Hence the Unit Fathers—essentially ordinary human beings, in no way processed, cleared or otherwise mentally modified. A brake on the supernormal Uniteers. A safeguard. A token to show that ordinary people are the masters, Units the servants.

Our last member came in just before the depot closed. I noted the psychologist's sign and leaned forward eagerly.

Ione was a snub-nosed, wistful, reckless, restless creature whom I liked at sight. I wondered why a girl like Ione should be volunteering for a Unit—at nineteen.

"I won't be altogether different, will I?" she asked wistfully. "I like some things about the way I am now."

"The saner people are when they come in here," said the psychologist, "the less they change."

"I don't have to have my parents' consent, do I?"

"Not now. That was changed a couple of years ago. Would your parents be against this?"

"My parents are against everything," said Ione with a brief flash of bitterness.

So that was it. Later tests amplified this hint.

Ione was an unwanted child. And nineteen years after arriving unwanted she volunteered for a Unit. It made sense.

Lorraine and Ione represented the two opposites who both landed up in Units quite often. The spoiled children, the children so protected from the world that when the world finally kicked them in the teeth it was an incredible, crippling shock. And the unwanted children, the children who had been brought up by indifferent parents and who had realised early that the love which other children took for granted was not for them. The first group over-confident, expecting too much of life. The second group expecting and finding too little.

Now that my Unit was complete I reviewed it mentally.

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Lorraine, a girl who had always had everything she wanted, and let herself be broken to pieces the first time she wanted something and the world said no.

Dick, a man bored with a life in which things had come too easily and too early.

Helen, without moral sense or feminine warmth, hard as diamond.

Brent, bruised by a world in which everybody was quicker and cleverer than he was.

And Ione, a girl who should have been loved and admired but had always been unwanted and resented.

It was a group of useless people, five men and women who had grappled with the world and with life and had failed.

Five failures—and they were going to blend into something new, wonderful and perfect.

I saw quite a lot of the clearing and re-training processes. I didn't see A.D. again—he was being careful—and he didn't see Lorraine. He had known he wouldn't, of course. After the first day she wouldn't have known him anyway.

The ordinary human being's mind is an overgrown wilderness. There are beautiful flowers and trees in it, but none of the flowers are as tough as the weeds. The weeds tangle up huge areas and lurk in the shadows of the loveliest plants and shrubs. They suck most of the nourishment from the soil and often strangle the more delicate blooms. Sometimes when you look into such a jungle you can see nothing but weeds.

Psychiatry for centuries waged a hopeless war on the weeds. Psychiatrists could cut a weed down, but that was like trying to stop the sea with a cardboard box.

What could be done, however, was clear the wilderness and start again.

As a reversed current prevents permanent magnetism being stored in a piece of equipment, a certain artificial neural current could cancel out everything in a mind—not by painting over what was there already, but by balancing it, nullifying it, totally erasing it. It was like re-recording on magnetic tape.

And the cleared mind was capable of wonderful things. It learned rapidly and correctly. No longer did it know that *blonde men hit you.* Its calculations for the safety of the body it controlled weren't biased by the command *when there's danger always jump left.* It wasn't necessary any more for men to fall in love with every woman who reminded them of their mothers.

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When a particular pattern of light and shade fell on their eyes women no longer had sickening, blinding migraine.

All this wouldn't have been much good if the weeds had been able to spring up rapidly again.

They didn't. The weeds of the mind gain strength with age. A weed could grow in a cleared mind, but it would be thirty years before it could take firm hold. And usually adults, unlike children, were able to recognize these weeds for what they were and pull them out easily, long before they became a danger.

The Units had grown out of this clearing process.

As mankind's boundaries were set wider and wider, as technology and education and social science and economics and politics and the human span of life grew, as man outgrew the planets and moved out into the galaxy, the task of directing things became more and more difficult and complex.

More electronic brains were used every week, but on the whole cybernetics flopped. Getting the right answer from an electronic brain depended on punching the right buttons. Cybernetics helped to do things, it could never do them.

Hence the Units. Five cleared human beings, specially trained for a job and trained to work together, each to perform some function and trust the other four to do the rest, could do things no electronic brain could do and no group of a thousand individuals could do.

You see, the Units never made mistakes. That sounds like an exaggeration, but it isn't. When they did things which turned out to be wrong, subsequent investigation showed that their decision had still been right. Essential information might have been missing. Immediate action might have been called for on a basis of guesswork. The choice might have been among half a dozen courses of action each of which was wrong. Or they might have done the thing too late. Units could make *that* kind of mistake—their timing could be wrong. But being reasonable, being 100 per cent sane, being complete, being trained, being a Unit, no Unit could be *wrong* if it tried.

The Unit Fathers were kind of team managers. Sometimes a Unit on its own was too refined an instrument for ordinary things like booking accommodation, getting on a train, or taking a day off. Leaving a Unit to attend to such things was like using a scalpel to cut bread.

It wasn't just that a bread-knife could do the job as well. A bread-knife could do the job a whole lot better.

Hence me, Unit Father—bread-knife.

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It took only three or four months to train a Unit. That included all the general information the Uniteers individually had to have about life. True, there were enormous gaps, but only gaps which could quickly and quite easily be filled.

At the end of three months my Unit and I were on a ship bound for Perryon.

II

There is plenty of time to get to know people on spaceship trips. None of them are longer than about two months, but two months is a long time when you have nothing to do but eat and sleep.

On ocean trips at least you can play tennis and swim and lean on the rail. In a spaceship the most exciting game you can play is chess. Playing cards isn't impossible, but the technique of handling metal cards and sliding them over the magnetized table destroys most players' concentration.

We hadn't really met socially before the trip. The five who made up the Unit proper had been trained to work with each other and I'd seen them all at every stage from birth to maturity, so to speak. Yet it was only on the *Violin Song* that we had time to sit together and get to know each other.

The first day out of New York I had morning coffee with Dick.

"Let's get to business," he said briskly. "As I understand it, we're being sent to Perryon to arbitrate between the two main factions there. But the real reason is because Perryon might be the base of the Traders. That right?"

I was a little startled by this blunt statement. In essence it was correct, but when I'd been told about it the matter hadn't been reduced to its essentials like this.

"Correct," I said.

"If we find that's so, that Perryon *is* the Traders' base, what are we supposed to do about it?"

"Just 'take appropriate action,'" I said.

Dick nodded. "*Carte blanche*. That's good. Okay, I'm going to check on Perryon. I've got a dozen books. Be seeing you."

He shot himself across the saloon, disdaining the hand-holds.

This, then, was the new, dynamic Dick, the brains of my Unit. A very single-minded young man.

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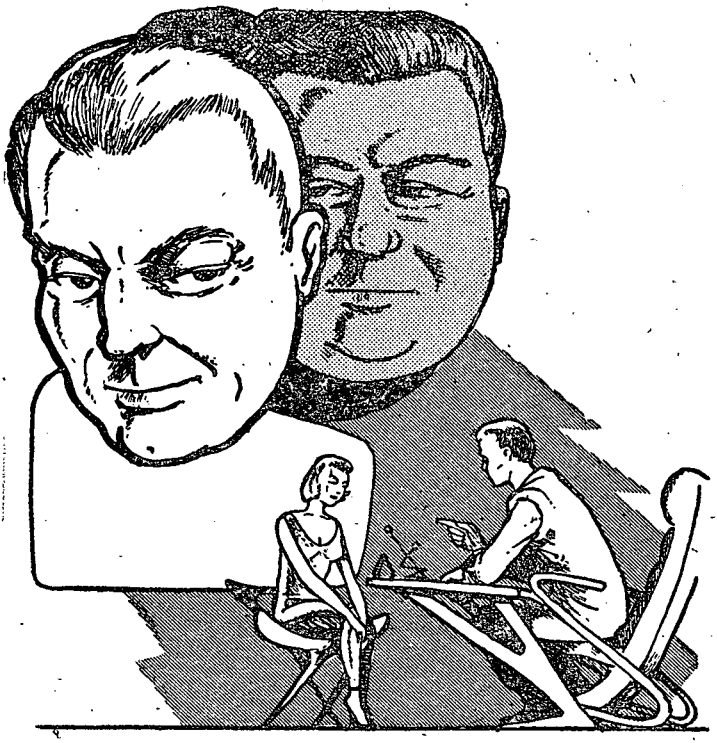

He'd covered a lot in a few words. Officially we were going to Perryon as arbitrators. Perryon, like many another place at many another time, had a North-South squabble going on, about this, that and the next thing. My Unit was taking the place of a governor, with all the governor's power and far more than the governor's responsibilities.

Probably even if the question of the Traders hadn't arisen a Unit would have been sent to do this job. It was about time that Perryon, an impecunious, inhospitable, though climatically mild world, had its first Unit.

The Traders, or Free Traders, were smugglers.

Before space travel was an accomplished fact it had always been assumed that if we ever did get to the planets and to other

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stars freight rates would be fantastically high. Why this was assumed isn't clear. The kind of ships we use cost nothing to run and not very much to service. Two months is a long run, most journeys taking less time. Hold space is nothing in the star lanes. It costs very little more to transport things between Earth and Arcturus than between Paris and New York. In some cases it actually costs less to move things light-years between worlds than a few hundred miles on Earth, depending on how much handling is needed.

This led to difficulties. Newly-settled planets didn't bother to develop certain industries. It wasn't worth while when the products of New York, Berlin and London cost only a little more than they cost in New York, Berlin and London.

This in turn led to economic chaos. Capital which was spent on the colonies didn't stay in the colonies, it came back—to traders, not to the investors. Demand for many kinds of goods began to exceed the supply. Earth hadn't the space to expand any more ; the colonies had, and didn't use it.

So heavy tariffs went on most goods being exported to the colonies. Not on newspapers, magazines, books, films, gramophone records, but on washing-machines, cars, radio sets, furniture, typewriters, clothes. The tariff wasn't imposed to protect local industries, it was imposed to force local industries to start.

A new balance was achieved.

Then, of course, smuggling started. It was too easy. Anyone who had a ship could pack it full of, say, washing-machines and sell them at a profit of £20 per machine on some planet where the duty-protected washing-machines were expensive and not very good. Three thousand washing-machines at £20 clear profit a time is £60,000. The expenses of the trip could be as low as £5,000.

Any way you looked at it, the Traders were on to a good thing.

The chances that Perryon was the Traders' base weren't high. But it was known they had to have a base somewhere, on some settled planet. It was also known their base couldn't be Earth.

With the kind of space travel we used, the only places anyone could get to were the places everyone could get to. It was as if all travel were by railroad—where the lines went, any train could go. Where they didn't go, no train could go.

Part of our job was to check Perryon. It was one of nearly fifty worlds on which the Traders' base might be.

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Now by stressing and explaining it like this, I've given that angle far more importance than it had for us at the time. As far as we were concerned, it was an incidental possibility, something most unlikely to concern us. We were acting on a lead, like more than forty other groups acting on the same lead. For all of us, except one, the lead would turn out to be false.

Naturally we didn't expect to be the one.

While I was still sitting there—I say sitting because that's easy to say, not because it's accurate—Lorraine came through, using the handholds. She carried a towel and a clean fallsuit, apparently on her way to have a bath.

When she saw me, however, she pulled herself over beside me and strapped herself about the middle, fastening her towel on another strap.

"Say, Edgar," she began. "You knew me before, didn't you?"

"Before you volunteered for a Unit?" I asked. Obviously that was what she meant, but I wanted time to consider my answer.

"Yes. What was I like?"

She meant, compared with what she was like now.

I looked at her. Physically, of course, she was exactly the same, except perhaps that she was a shade more alert now than she had been before, a little easier and more assured in her manner, and held herself more proudly.

Temperamentally she wasn't the same girl. She was serene now, but not serene-placid, more serene-enthusiastic. She had developed a sense of humour she had shown no sign of having before.

"Don't act as if it were top secret information," she said. "It isn't. They'd have told me at the depot, but they'd have told me just what they wanted me to know. Why did I volunteer?"

"You were going to commit suicide otherwise," I said.

"No!" she exclaimed incredulously. "What for?"

"A man."

"Good God. I must have been crazy. They should have told me about that. Did you know the man?"

"No."

"Did you know me well?"

"No."

"You're not much help," Lorraine complained.

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"Uniteers aren't supposed to be interested in their previous history," I said.

"Oh, I'm not desperate to know about mine," Lorraine remarked, shrugging her shoulders. "Only they might tell us a little more." A thought struck her. She looked startled. "I don't even know whether I'm a virgin or not!"

I must have reacted violently, for she laughed in my face.

"Never mind," she said, "I can find out. But that's the kind of thing I mean. Was I rich or poor, sociable or lonely, sought after or ignored? Did men write sonnets to me or pretend not to see me in the street? Was I a good girl or a loose woman?"

"Forget it," I said. "It doesn't matter."

"No, I guess it doesn't," she agreed mildly. "Tell me one thing, though. Which do you prefer—the girl I am now or the girl I was?"

"The girl you are now," I said instantly.

She smiled and unstrapped herself. "Well, that's something," she said, and pushed off with her feet.

I watched her fly gracefully out of the saloon. Some people think women look their best in spaceships. All the curves are high curves, with no gravity straining at pectoral, abdominal, gluteal and thigh muscles. On the other hand the fallsuit which is usually worn in space—a one-piece garment caught at wrists and ankles—is seldom glamorous.

Thinking of fallsuits made me glance beside me. Lorraine had left her towel and clean suit behind.

I threw back my head and laughed. That was supposed to be impossible. People who had been cleared just *didn't* forget things. So this towel wasn't here. I was imagining things.

I unstrapped Lorraine's things and myself and started after her.

She was in the so-called bath when I reached the so-called bathroom. One bathroom was allocated to the six of us.

If you want to make some money and be blessed by thousands of spaceship travellers, get busy and think up some satisfactory way of getting washed in free fall. The ordinary toilet functions aren't too badly catered for, but when it comes to taking a bath human integrity so far hasn't distinguished itself.

You could quite easily be sprayed by water, like a shower, but when the water bounces off you in all directions, and off the walls, and back again, how are you going to escape drowning? Water and air in space are the very devil. Surface tension is

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enough to keep droplets of water together, not enough to keep big globules in one piece. When you touch water it runs all over you.

The only way to take a bath is this. You put on an air-mask and go into a tank full of water, with a complicated water-lock to enable you to get in and out without taking all the water in the tank with you.

Lorraine was in the tank. Her discarded clothes hung from a strap. Apparently she hadn't remembered leaving her things with me.

I left them on another strap and was just leaving when I heard a muffled tapping.

I was puzzled. Why should Lorraine be tapping the inside of her tank? Unless she'd taken in with her something hard with which to do the tapping it must be quite painful banging the inside of a metal tank with bare knuckles against water resistance.

The tapping went on, insistent.

I tried the water-lock. Naturally it didn't move.

I tapped back. There was a pause, then the tapping inside resumed, quicker and stronger.

Not content with forgetting things, Lorraine seemed to have locked herself into a water-tank. I grinned again.

Then I saw that the tank was locked on the outside.

These tanks are like ordinary bathroom doors—they have a catch inside. But there was also a lock, used presumably when a tank was empty or out of order or being used for something else. Someone had locked Lorraine in.

I looked in another bathroom. There was a key in the lock of its bath. I removed it, took it back and tried it on the lock of Lorraine's tank. It fitted.

Lorraine came out dressed in an air-mask and grabbed her towel and fallsuit. "Be a gentleman, Edgar," she said. "Retreat."

"Why?" I asked. "Don't they remove all your inhibitions when they clear you?"

"Yes," she said primly. "But you still have yours."

"I'm not leaving you alone anyway," I said more soberly. "Someone's trying to kill you. And he might try again."

Lorraine stared at me for a moment. After that she wasted no time in getting herself dried and into the fallsuit. Then we went in search of the rest of the Unit.

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This was the Unit's first job.

They very soon reached the conclusion that my guess was right and that someone had really tried to kill Lorraine.

The tiny facemask can manufacture air for about fifteen minutes. But for the accident of Lorraine leaving her towel behind no one would have gone near the bathroom for at least half an hour. At the end of that time someone would have asked "Where's Lorraine?" and after another quarter of an hour it would have been established that I'd seen her going to have a bath. We'd go looking for her, find the tank unlocked by this time, of course, with Lorraine drowned inside it. We'd have presumed that her mask was faulty.

If Lorraine hadn't realised almost as soon as she got into the tank that she'd left her things behind, and tried to come out to go and get them, she wouldn't have discovered that she was locked in until I'd been and gone.

The chances were altogether too much in favour of Lorraine being drowned for the incident to be anything but a carefully planned attempt at murder.

There might have been a possibility that someone had been playing a joke on Lorraine, if we'd known anyone on the ship. But we didn't know a soul. There were no children on board who might have played a foolish trick like this.

Dick left us for a while to get information and a passenger list from the captain. When he came back the Unit went to work again.

I wasn't in this. I sat in the room and listened, but I couldn't help them and I didn't understand much of what was going on. Someone would begin to say something, then stop. Lorraine and Dick would speak at once. Brent would begin something, Helen would take it up, Dick would shake his head. Lorraine would look up suddenly, Ione would interpret the look and for a moment they'd all be chattering excitedly.

It didn't look at all impressive at first. Then you realised that every time anybody stopped speaking, a whole process of thought had been followed out and discarded.

You see it happening sometimes with people who have quick minds and know each other very well. Someone begins to ask something, after a word or two another begins to answer, then the first speaker interrupts, satisfied.

I once saw a class of bright schoolboys running a competitive quiz. One question and answer went like this:

"A man asleep one night dreamed that—"

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" The answer is, how could he— "

" That's right."

The Unit worked like that. They didn't have telepathy and they didn't need it. Language and knowledge of each other's processes of thought were enough.

Dick had to do more talking than anybody else, because the others had much more difficulty in understanding what he was thinking than he had in understanding them. However, even Dick generally didn't have to say very much before the others grasped what he was driving at.

Having reached the tentative conclusion that the most probable motive for the attempt to murder Lorraine was that the Traders did have interests on Perryon and didn't want the Unit to investigate there, they turned their attention to the passenger list. It contained quite a lot of information about the people on board. Nevertheless, I didn't think for a moment that the Unit would be able to establish the identity of the assassin just from that.

They thought so, however. They came up with three names and declared confidently that the assassin must be one of these three. They didn't give their reasons. Then we went to see the captain again.

Captain Rawlson was in full charge of his ship, and we were merely six passengers, theoretically. But the fact that we were a Unit, with the full backing of the U.A. in anything we did, and still stronger backing behind that, made him nervous and ready to fall over himself in an effort to help us.

I was the spokesman, though Dick had told me what to say.

" If you and two of your officers come with us," I said, "while we call on these three people, we'll be able to find the right one."

" How ? " the captain asked, bewildered.

I couldn't answer that, so I turned to Dick.

" Just by interpreting their reaction to seeing us," Dick said.

" But . . . what then ? " asked the captain. He still wanted to give us all the help possible, but he couldn't arrest a man because we thought he looked guilty.

" I don't know," I said, taking over again. " It will depend on circumstances. At least after that we'll know whom to watch."

The captain still looked doubtful, but couldn't very well refuse. He and two of his officers came with us and we went in search of the three people on our list.

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We called on the woman first, a Mrs. Walker. Rhoda Walker turned out to be an attractive widow of twenty-eight, very quick and alert and smart and metallic. She reminded me of Helen before Helen was cleared. Of course Helen herself wouldn't know about that.

The moment I saw her I thought we'd come to the right place. She looked not only the kind of woman who would commit a murder, but also the kind of person who would think up a scheme like that to do it.

Lorraine did the talking. "Sorry to trouble you, Mrs. Walker," she said pleasantly. "Someone just tried to kill me, and I wondered if you could help us to find out who it was."

"Kill you? Here in the ship?" the woman exclaimed.

Lorraine nodded. "Frankly, Mrs. Walker, we think it might have been you," she said in the same pleasant tone.

Rhoda Walker looked around the party. "I begin to understand," she said softly. "You're a Unit, going to Perryon. Someone doesn't want you to get there—as a Unit."

"That was the conclusion we reached," Lorraine agreed. "I believe you're returning to Perryon to marry again, Mrs. Walker?"

For the first time the woman showed surprise. "How do you know that?" she demanded.

"We're good at guessing," said Dick. "How old are you, Mrs. Walker?"

She looked at the captain, holding himself in the doorway with me. All the Uniteers had packed themselves into the small cabin. The three officers and I were looking in from the doorway.

"Do I have to answer these questions?" Mrs. Walker asked the captain.

He hesitated. "Please do, Mrs. Walker," he said at last. "I may tell you—"

"No, you may not," said Dick quickly.

"All right," said the woman. She turned her head to look at Brent hovering behind her. "But kindly stay over there where I can see you all."

"Excuse me," said Brent politely, and slipped his hand down inside her fallsuit. There was a very brief struggle, and Brent came away holding a tiny gun. Rhoda's suit had been torn open, showing a curiously robust brassiere. To wear a bra at all in space was unnecessary and unusual. However, the reason was now obvious. The gun had come from a tiny holster between her breasts.

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"Now you *will* answer questions," said the captain with some satisfaction. "Carrying arms aboard ship is illegal. I can arrest you here and now."

"Go ahead," said Rhoda. She had already recovered her poise and was calmly fastening the top of her suit again.

"I'm sure you don't really mean that, Mrs. Walker," said the captain. "Incarceration aboard a spaceship is most uncomfortable."

Lorraine settled the issue by carrying on as if nothing had happened. "Dick asked how old you were, Mrs. Walker," she said.

"Twenty-eight. It's on the passenger list, if you cared to look."

"We have looked. I think you're about thirty-four."

Rhoda shrugged but made no other answer.

"Your son is about fourteen," Lorraine remarked. "At least, he would have been if he'd lived."

Rhoda jerked convulsively. "How do you do it?" she asked. She didn't really care—she asked that question to cover something else.

"Did you try to kill Lorraine?" Dick asked.

"No," said Rhoda.

Dick turned away. "It's true," he said. "She knows something, and we'll be back to find out what. But meantime we want to find someone else. Let's go."

I opened my mouth to suggest that if Rhoda Walker knew anything we'd better get it from her here and now, for at least half a dozen good reasons. But I didn't say anything. Dick knew what he was doing.

Brent looked at the captain, waving the gun. "Do I give it to her or to you?" he asked.

"To me," said the captain, a trifle dazed. "You can get it from me at the end of the trip, Mrs. Walker."

"Come back some other time and see me socially," said Rhoda, as we went out.

"Don't worry," said Dick over his shoulder. "We will."

I couldn't understand it any more than the captain could. But I had the beginning of an idea.

The ordinary person, guessing, makes use of a lot of things he doesn't even know. Some of them are useful and liable to help him, while others are worse than useless and liable to give him the wrong answer every time. Take the lucky fellow. He's

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weighed the chances unconsciously and always veers toward the thing which might pay off and away from the thing which is going to entail more risk than it's worth. Then take the unlucky fellow. He always has good reasons for doing the wrong thing. He can always find ways to lose money. Tell him the right thing to do, he'll go away to do it, and later you'll find that between leaving you and doing the thing he's thought of some much better thing to do and has lost money, crashed his car, offended a customer, landed in jail or broken a leg.

The unlucky fellow has some sort of command that everything he does must turn out wrong. He tells you so himself. *Everything I do turns out wrong.* He says that twenty times a week. That or something like it.

Now the Uniteers have absolutely no bias any way. Even when they make blind guesses, the guesses are really blind, not modified by desire or hope or fear. And when they have reason to think a thing might be so, they know what the reason is, how likely it is, and how to check it.

How Lorraine had guessed Rhoda Walker was going back to Perryon to marry again I didn't know. Her guess was right, but probably Lorraine would still have got some of what she wanted if it had been wrong. Then Dick asked how old she was—marking time perhaps, but her reaction had told Lorraine that she was older than she pretended. Meantime Brent had been hovering about unobtrusively, watching Rhoda closely. Perhaps she had made a tiny movement toward the gun. It was even possible that he'd caught the glint of metal as he floated over her. After that Lorraine had made another good guess, a little off the target—and instantly realised that it was off the target, and shot again.

Like fortune-tellers, Lorraine and Dick hadn't had to guess about particular things. They probably couldn't say whether Rhoda Walker had been born on Earth or not, for example, but they didn't have to. They told her some of what they *had* guessed.

And Dick had led us away as soon as he was completely certain that Rhoda wasn't the assassin. There was something else we could get from her, he said. The fact that he hadn't tried meant that he didn't want to get it—not yet.

The second person we called on was a false lead. I won't go into details. The Unit questioned him closely and made a lot of intelligent guesses about him, but he wasn't the man we were looking for.

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Jack Kelman, the last suspect, was surprised to see us, but friendly enough. He was a small, restless man, restless enough not to be able to relax even in free fall.

"Sure, shoot," he said. "I got nothing to hide."

Ione was sniffing. "Perfume," she said.

None of the rest of us could smell anything. Ione's sense of smell had been sharper than that of the rest of us before she'd been cleared, and it still was.

"Helen!" said Dick sharply.

That was cover. Helen moved, but it was Brent again who threw himself on Kelman.

Again there was a gun. This time it was fired. At one period it had been pointing at Lorraine, but when it went off, still in Kelman's hand, with Brent holding his wrist, it blew the lower half of Jack Kelman away.

The women got outside quickly. Being cleared they probably couldn't be sick even at such a sight. Nevertheless, none of them had any desire to stay and watch.

"Let's get back to Rhoda Walker's cabin," said Dick.

The captain protested. A man had been killed. There were things to be done . . .

"If you don't want more than one death on your ship," said Dick, "let's get back to Rhoda Walker's cabin."

The captain made no further protest.

Rhoda Walker was floating in the middle of her cabin. She hadn't been shot, she'd been strangled. If anything, the sight of her was less pleasant than Kelman had been.

The captain, Dick and I reached quick agreement. The captain obviously didn't share my suspicion that Brent could have taken Kelman's gun away from him as easily as he had taken Rhoda's —without the gun going off. It was easily established that it had been Kelman's hands which had choked the life out of Rhoda. And the captain was ready—in fact eager—to believe that Rhoda or Kelman or both had made the attempt on Lorraine's life.

Thus the matter was quickly settled, officially.

As Dick said later: "There wasn't much we could have learned from them, Edgar. They were small-time crooks hired to do a job. Look how easily they panicked. The people who hired them certainly wouldn't have allowed them to know much. It was more important to get them both out of the way."

"So you gave Rhoda a chance to go to Kelman, warn him, tell him we suspected her and be murdered for her trouble?"

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I suggested. "Not to mention giving Kelman a chance to go for his gun and get himself accidentally shot?"

"If we hadn't handled it that way," said Dick simply, "how could we have handled it?"

I began to see why people distrusted the Units and insisted on having Unit Fathers in charge.

III

Having been told so plainly that someone didn't want us on Perryon, we nevertheless reserved judgment and didn't conclude that it must be the Traders.

It had seemed quite possible that the people who didn't want us there had a stake in the North-South dispute we were supposed to be going there to settle. But when we got there we found this was a minor affair, one we could easily handle.

The wars in Lilliput arose over the momentous question—whether to break eggs at the smaller or larger end. Swift meant to be satirical in choosing this as a cause for war, but satire has a habit of being less satirical than the truth.

Perryon's main point at issue was whether Terran or galactic history should be taught in schools.

Benoit City was the main town in the north and Sedgeware the capital in the south. Benoit City Council declared that since Perryon was a new world the children would be much better off with an understanding of the current state of the galaxy than with knowledge of the old, dead, useless lore of Earth. Sedgeware immediately retaliated with a course in Terran history from the earliest days to the present, saying that Earth was the mother world and people without knowledge of their heritage were primitive savages.

Presently books on Earth were unobtainable in Benoit City and information about the colonies was difficult to procure in Sedgeware.

Then the people of chilly Benoit City took to wearing new, fanciful clothes which had only one thing in common—none of them resembled anything ever worn on Earth. Since the people of Earth had at one time or another worn everything which constituted sensible clothing for the human race, the people of Benoit City had quite a job to find anything radically original, and often had to go to enormous extremes, just to be different. Meantime the people of warm Sedgeware wore nothing which

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wasn't of precise Terran cut, and while the women got on all right in summer clothes the men sweltered in double-breasted suits and felt hats.

In the Assembly the North delegates always voted for complete independence of Earth and the Southerners fought tooth and nail anything which broke the ties with Earth. Soon it was impossible to have a joint assembly at all, and two new Senates sat in Benoit and Sedgeware.

The first acts of violence arose over street names. Benoit City started it by changing all street names which savoured of Earth—High Street, Fifth Avenue, Broadway, Oxford Street, King Street, Regent Street, Willowbank. Sedgeware changed all its streets to names of Terran towns. Then marauders in Benoit City defaced the pure-Perryon street names and raiders in Sedgeware tore down the Earth names.

After that it wasn't long before any party of Southerners found in Benoit City were assumed to be there to commit sabotage. Soon after the first fights, the firsts deaths were reported.

When we arrived, the two factions weren't far short of open war. And that was all it was about.

In Benoit City on the day we arrived Lorraine and I stood at the window of the former governor's residence and watched people pass outside. We could hardly believe our eyes.

A child of five, sex unknown, went past wearing what looked like a model spaceship. A girl hobbled past in a dress shaped like a water-pipe. A man wore a box-shaped garment about his hips and a shirt in the shape of a sphere. The sphere idea was quite common. Apparently the perfect sphere was passed as non-Terran. The next man we saw wore what looked like a big cannon-ball about his middle and smaller cannon-balls everywhere else. A girl came along in the first skin-tight outfit we'd seen, with holes cut for her naked breasts to stick through. The idea, we guessed, was that this must be true Perryon style because it certainly wasn't anything else.

"Wonder if it's safe to walk outside looking like we do?" Lorraine murmured. "Or must I get a square bra and rectangular panties?"

This wasn't necessary we found. The split wasn't because the North hated Earth and the South loved it. The Northerners weren't fighting with Earth, they were fighting with the South Perryonians over Earth.

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We spent the first week at the residence in Benoit City and the second week in Sedgeware. We suspected that the Perryonians would be counting almost to the second the time we spent in the North and in the South, ready to squawk if one was favoured over the other.

For Perryon was proud of us. We were the planet's first Unit. Even in Benoit City it was realised that we weren't there to rule Perryon on Earth's behalf, but to help the world independent of Earth. We did a few little jobs in the first few days that helped a lot—small stuff as far as a Unit was concerned, but very useful to the local people, and they were grateful.

We managed to settle a labour dispute, for example, simply by interpreting one side to the other. We showed the engineers who were going to dam a river exactly where and how to do it, and solved a troublesome case for the Benoit City police. These were just spare-time jobs, but they got a lot of publicity which didn't do our status in the community any harm.

So far we didn't interfere in the North-South arguments. We wanted to know more before we tackled that problem. Nevertheless, we were actually asked by the two Senates to act as liaison officers, and performed our first duties in a manner not too unsatisfactory to either side.

In the course of our local research it was easy to look for evidences of Trader activity. We found about what we expected. The Traders dealt with Perryon, obviously—all sorts of goods which hadn't paid duty were to be seen both in Benoit City and in Sedgeware.

But we didn't find any evidence that Perryon was the Traders' base.

We knew already that none of the Traders' ships were on any official register. People had been bribed to describe them, and the information thus gained indicated that the Traders' ships were small and specially built to be easily hidden. They weren't to be found on any world masquerading as ordinary cargo ships. When not in use they were probably buried in deep holes specially made for them in deserted spots, holes which would be covered carefully while the ships were away so that no aerial survey would reveal anything.

So we knew we weren't going to see any large, suspicious, tarpaulin-covered objects in back yards, objects which would turn out to be unregistered Trader ships. We were looking for more subtle indications than that.

And we didn't find any. There was no sign on Perryon of Trader money, for example.

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There's no point in making a kill unless you can benefit by it. Criminals through the ages have been notoriously unable to hang on to their loot until the hue and cry has died down before emerging as rich and powerful citizens.

We investigated all the people on Perryon who seemed to have a lot of money. That was easy, for there were about six of them.

Perryon was a poor planet and would probably always be a poor planet. Her natural resources weren't high, and the world had only been colonized because it was so similar to Earth. It was a comfortable world to live on, probably the most comfortable after Earth of all the worlds so far settled. But if Perryon didn't have the discomforts of Fryon and Gersten and Parioner, it didn't have their rewards either.

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A rich man stood out on Perryon like a sore thumb. All the men we investigated, except one, had brought their money to Perryon and how they had made it could be easily checked. The one exception was a financial genius who was making money like Henry Ford—only since he was operating on Perryon instead of Earth, cars weren't enough and he had to run businesses in electronics, engineering, publishing, textiles, mining, banking and a dozen other things. We checked Robert G. Underwood very thoroughly without finding any hint that his coffers might be swelled by Trader profits.

Toward the end of the second week, Dick and I were discussing things at the residency in Sedgeware. Outside on the lawn Brent, Ione and Helen were sunning themselves. Lorraine was in town conferring with the police chief. We worked very closely with the police of both Benoit City and Sedgeware.

Since their clearing and training Ione and Helen had become almost dumb. And Brent had been dumb anyway. Dick and Lorraine did most of the Unit's talking between them, though occasionally when some Unit representative had to be sent somewhere merely to make an appearance and pick up facts Helen or Ione was sent.

"You're sure there's no danger?" I asked, nodding at the three on the lawn. Anyone who wanted to take a shot at them could do so without hindrance. We had no guards in attendance.

"Oh yes," said Dick confidently. "Making an attempt on Lorraine's life in the ship, something that might have passed off as an accident, was one thing. Jack Kelman was just a thug hired to do a job, Rhoda Walker an assistant in case he needed one. But trying anything here would merely prove that there was something here for a Unit to find, and the U.A. would probably send out about six Units to make sure it was found."

"It's all very well for you," I commented. "It isn't your responsibility to look after the safety of the Unit—it's mine."

"Believe me," said Dick, "if something happened to a member of this Unit—any member—you wouldn't care half as much about it as we would."

"I don't quite get that," I said. "Suppose you lost Ione, say. The four of you who were left would still have plenty of brains and drive and personality and brawn, wouldn't you? Would it make all that difference? Surely the Unit would function much as before?"

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Dick shook his head very decidedly. "Absolutely not," he said. "We're trained so that we each cover so much. We *could* have been trained so that the four of us without Ione could do a decent job . . . but we weren't. When anything happens to any one of us, you're supposed to take his place—but frankly, Edgar, you'd be no good at all."

"Seems to me," I remarked, "that it's a queer way to build up a working force—useless if one member is missing."

Dick grinned. "What a wonderful argument that is. You could make a car with only three wheels. Does that mean that if you make a car with four, you should make it so that it can run quite well on three? Should you construct your car so that it will run if necessary without a carburettor, or without the petrol pump, or the oil pump?"

"All right, you win," I grunted.

"That analogy isn't too bad. The five of us are the engine, the transmission, the body, the wheels and the controls. Without any one of us, what good is the car?"

The phone rang. Strictly I should have answered, but Dick was nearest. He picked it up.

People who are cleared don't lose their emotions. They are said to feel all the more pleasant emotions much more clearly and strongly than ordinary people, and though the less pleasant emotions like fear and anger and desperation don't necessarily affect them the way they do us, they're still there.

But cleared people don't have to show these emotions. If they're with others who are showing theirs, they do, usually, just to be sociable. They seldom make demonstrations which are artificial as far as they're concerned.

Dick was so calm I thought this was just a routine call. So it was a shock when he put the phone down and said:

"Someone just shot six bullets into Lorraine. She won't live. Let's get down to the hospital, shall we?"

It took a while before even the considerable authority we could wield got us in to see Lorraine. They'd been operating when we arrived. There was a faint chance to save her life, apparently, but so faint that it was mentioned only for the sake of accuracy.

"Don't you understand, idiot," Dick said heatedly to the head surgeon, for once letting his exasperation with ordinary uncleared people show, "that that's exactly why we've got to see her right away? She's a member of a Unit. With the rest

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of us helping her, she'll pull through if there's the ghost of a chance. But if—"

The head surgeon walked away.

Cleared or not, Dick was raging. It was as if someone was insisting on amputating his right leg and he knew the leg didn't have to be amputated.

"Cool down," I said. "We've got to do this their way."

"While Lorraine dies!" Dick exclaimed.

On Earth the Units are commoner and better understood. People know that if a Uniteer has a baby, for example, the other members of the Unit are always with her. The husband, whoever he is, stays outside as usual, but the four other members of her Unit are there beside her, helping her. Not that they *need* to be there for a confinement.

They do *need* to be there when it's something really serious.

You see, in one way cleared people aren't as sensible as the rest of us. If they're in supreme danger, if they're badly injured, they refuse to give up. They won't lapse into unconsciousness and cease to take any responsibility for what happens to them. They go on fighting until at last they die.

That's if they're on their own—or surrounded by ordinary people, which comes to the same thing as far as a cleared person is concerned.

If the Unit is there, they trust it completely, as usual. The Unit tells them to sleep, or concentrate on something, or block off something, or go into deep trance for days at a time if necessary and they do exactly as they're told.

Uniteers aren't medically qualified, but they do know far more about their own bodies and about some aspects of healing than doctors do.

I sent Ione to find out what had happened, Brent to check on conditions at the hospital to make sure that whoever had shot Lorraine didn't have a chance to make absolutely sure, Helen to see the police chief, and Dick to find out from some responsible doctor exactly what Lorraine's injuries were. I gave them four minutes.

I myself went to see the medical supervisor. He'd be up-to-date in his information and would know that Uniteers shared everything—even operations.

That was what I hoped. What I found was an old man who tried to argue with me.

"I know it's often done," he agreed, "but surely it's merely a sort of Unit privilege. Now in this case I understand the

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woman has two bullets through the right lung and one in the stomach. It's purely a surgical—"

"Doctor Green," I said savagely, "if you delay us ten seconds more, I'll have you broken and thrown into the street."

The doctor drew himself erect. "Intimidation won't get you anywhere, young man," he snapped. "I'm in charge here, and I haven't refused your request, merely—"

"Merely delayed us so that when we get to Lorraine it may be too late. Dr. Green, if Lorraine dies you may be charged with murder."

That got through and frightened him. It wasn't an idle threat either, and perhaps he could see that. If Lorraine died and later investigation showed that the assistance of her Unit might have saved her life, Green would be hounded by the U.A.

Green and I arrived back at the operating theatre just as Dick, Brent and Helen got back from their errands. We had to wait ten seconds for Ione.

We went in. We were lucky, we were able to stop the heavy sedation they were putting Lorraine under. Trouble with medicine is, it's ninety-five per cent generalization. Since Lorraine had been shot six times, with three wounds which could be classed as fatal, they were naturally treating her for shock as well.

Which was wrong, for Lorraine wasn't, couldn't be, suffering from shock.

When she first opened her eyes, we were all there. She was conscious only for a few seconds, but even that dumbfounded the doctors. She shouldn't have regained consciousness at all.

They all spoke to her, rapidly, quietly. Dick told her briefly and with bluntness which shocked the doctors exactly what her injuries were and how serious they were. He told her what to do. Helen, who as a woman could tell her more than Dick could, amplified his recommendations. Ione added a word or two. Brent merely said her name, but I gathered it carried a promise that she need devote no attention to self-defence—he was taking that over.

In less than half a minute it was over. The Unit could cover a lot of ground in a very short time.

When she went under again Dick breathed a sigh of relief. "She's okay," he said. "She'll sleep for about six hours. We'll have to be back here then." He looked at the doctors

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round us. "And before you do a thing to her, check with us, understand?"

The chief surgeon still hadn't recovered from the shock of seeing Lorraine open her eyes. "I don't understand this . . ." he began.

"That's what I was telling you," said Dick. "You don't understand it at all. Get this for a start. Lorraine's cleared. That means she has much more control of her so-called autonomous nerve centre than you've ever known anyone to have. When she suffers an injury the brain doesn't cut out just to save itself, it wants to know if there's anything it can do and won't go out of phase until it's satisfied. That's why we had to be here. We told her she'd be all right and that she could sleep for six hours with everything under control."

"But you don't know—"

Dick sighed. "I know exactly what her injuries are and exactly how she can help them to heal. Doctor, if Lorraine felt like it she could step up her thyroid activity or cut it down. She could stimulate or diminish her heartbeat. She has some control over all the endocrine glands and can exert a small influence over the behaviour of most groups of cells she decides to concentrate on. If you looked at her wounds now you'd be astonished to find how clean they are already.

The surgeon looked at me. I nodded. I'd seen one or two demonstrations at the U.A. depot.

"I'll believe you," said the surgeon. Obviously it was an effort.

We held a discussion with the doctors about Lorraine's treatment and then went out—except Brent. He had taken charge of Lorraine. He had promised her that it was safe to sleep, and he was going to keep his promise.

The doctors still believed Lorraine was going to die, obviously. That didn't worry us.

We compared notes. Apparently Lorraine had just left the police chief and was walking in the street when a man in a grey suit fired six shots into her from twenty yards' range, jumped into a car and was driven off. The car had already been found abandoned. It had been stolen anyway.

There had been no pursuit because there weren't many cars in Sedgeware and the only one in the street at the time had been going the other way. The only description we could get of the assassin was that he was tall and wore a grey suit. There had

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been someone in the car, but there was no description of him at all.

I couldn't help remarking: "You'd just been proving this wouldn't happen, Dick."

"I know," said Dick. "This seems crazy. It's been Lorraine both times. Could someone be trying to kill Lorraine, independent of the Unit?"

My thoughts somersaulted. Lorraine, though she no longer knew it, was A.D.'s daughter. And A.D. was mixed up in all sorts of things and might have all sorts of enemies.

"Could be," I said. "I'll tell you what I know later."

"Tell me what you know now," said Dick, though we were still standing in the corridor outside the operating theatre.

I told him.

"We'll check on that," said Dick. "But it doesn't sound likely."

"You thought it wasn't likely that Lorraine would be shot."

Dick nodded. One thing about Uniteers—you can't needle them. Dick had made a mistake, and it didn't bother him. He didn't blame himself for not having foreseen the attempt on Lorraine's life.

We left the hospital. Nothing was said about taking extra care now, but I noticed Ione wasn't even listening to what Dick and I were saying. She was looking about her like a lynx. With Brent guarding Lorraine, she had taken over the job of protecting us.

"Next thing," said Dick. "Could it have been meant to happen just like this? Lorraine seriously hurt, but not dead? After all, an old explosive gun was used. If it had been a new gun, it wouldn't have been worth taking what was left to the hospital."

Unexpectedly it was Helen who answered that. "One in the shoulder, two in the legs, two through a lung and one in the stomach," she said. "The best marksman in the galaxy couldn't do that and expect the victim to live afterwards."

That disposed of that.

When Lorraine wasn't around, Helen talked more. She brought up the next point.

"Could this be a Benoit City stratagem to turn us against Sedgeware?" she asked.

Dick considered it. "No," he said. "Because obviously it won't."

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We got back to the house. Already there was a police guard there. Tyburn, the Sedgeware police chief, was taking no more chances.

I saw right away when the three Uniteers who remained tried to get down to business that what Dick had said about all five being essential was all too true. There was no Unit any more—just four people, including me. Four people who could make mistakes like any other four people.

"But we'll get a session with Lorraine tomorrow," said Dick.

"No you won't," I retorted.

Dick looked at me in surprise. "The fact that she's in hospital won't stop us," he said. "We can sit round her bed and—"

"So far," I said grimly, "I've only got your word for it that Lorraine will live. And we're not going to take any chances with her."

Dick nodded reluctantly. "Anyway she won't take sedation so she'll have a lot of pain for a day or two," he said. "Might not be at her best. We'll wait a couple of days."

"We'll wait more than that," I said. "Officially I'm in charge of this Unit, remember?"

It was decided that meantime the Unit should function as fact-finding individuals. We all carried guns and kept our eyes open.

The difference between the kind of investigation you read of in fiction and the one we were engaged in was that in fiction the people behind the spy ring or crime cartel or whatever it is introduce themselves to the investigators in the first few hours—though not, of course, as the leaders of the spy ring or crime cartel. The fictional detective merely has to sift through the people he knows, remembering that the more harmless his suspect, the more likely he is to be the villain of the piece.

Now with us the position was exactly the opposite. Assuming our opponents had the slightest knowledge of the capabilities of a Unit, and at least average intelligence, we knew they'd have stayed out of our way. None of the people we'd met in Benoit City or Sedgeware could possibly be involved with our enemies.

Just as the Unit had identified Jack Kelman and Rhoda Walker they could identify people involved in the other attempt to kill Lorraine. The fact that we hadn't done so meant that we hadn't met any of them.

And we weren't going to, either. Detectives may be underrated. Few people underrate Units any more.

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During the next few days we learned almost all there was to be known about Perryon. We visited the other cities. Nineteen towns, in addition to Benoit City and Sedgeware, had more than twenty thousand inhabitants. One of us visited each of them.

And Helen, after one such visit, came up with what might be the answer to the North-South problem.

Benoit City and Sedgeware were the clear leaders of the two sections of Perryon, and the people of these two cities were also the leaders of the North-South squabble. But Twendon, a hundred miles to the north of Sedgeware, and Foresthill, two hundred miles south of Benoit City, were only a little behind them in economic and political importance. And neither Twendon nor Foresthill had ever taken much part in the dispute. Being in the south of the northern hemisphere and in the north of the southern section, they could understand both points of view, steered a middle course, and didn't think it mattered much anyway.

Now the Unit, once it was functioning again, could quite easily sway the balance of power and make Twendon the capital of the South and Foresthill the capital of the North. The influence and importance of Benoit City and Sedgeware would wane, and so would the importance of the issues they stood for.

We needn't tell anyone, even the people of Twendon and Foresthill, what we were doing.

None of us saw any sign that Perryon was the Traders' base, and none of our efforts to find out who had shot Lorraine bore any fruit.

Lorraine was going to be all right, eventually. She had been so seriously injured that there was no question of her leaving hospital for some weeks, and even Dick didn't insist on a Unit session in the hospital for four or five days.

But at last we'd done all we could do without some guidance from the Unit as a whole, and since Lorraine herself insisted that she could take part in a brief Unit session we all went to the hospital and got busy.

I wasn't present this time. I was fully occupied keeping doctors and nurses out of the way. Understandably, they were all against this. I had some sympathy with their point of view. Lorraine was still in anything but good shape, and though she was by now out of danger, her body was fully occupied with healing without having to cope with a strenuous Unit session as well.

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And they are strenuous. The man who works with his brain while his body does nothing can be fully as tired at the end of a day's work as a labourer. Fit Uniteers can work together all day—but a fit Uniteer could also walk upstairs, and it would be some time before Lorraine could do that.

I had made Dick promise to go easy on Lorraine. He kept his promise, after a fashion. They were with her for only half an hour. But I saw her afterwards, and she was dead beat.

"No more for another week at least, Lorraine," I promised her.

She managed a faint smile. "It took more out of me than I thought," she admitted. "Another thing, Edgar—don't trust our conclusions too much. Dick's satisfied, but I know I wasn't playing my full part."

Dick, when we got back to the residency, was jubilant. "Even at half strength the Unit can get somewhere," he said. "Edgar, you'll have to send a new report back to U.A. on Earth. We've been barking up the wrong tree."

I waited.

"Someone hired Jack Kelman to kill Lorraine," said Dick. "The Traders, we thought—and we were right. Someone hired someone else to kill her here in Sedgeware. The Traders again, we thought—and again we were right.

"I told you before Lorraine was shot why I thought no further attempt would be made on us. Because that would make it clear that Perryon *had* something to hide, and in a few weeks, even if they killed the lot of us, there would be half a dozen Units out from Earth to investigate the whole thing—and they'd get results.

"Well, somebody did shoot Lorraine. So the first thing we considered today was how that changed the situation. The obvious answer was that all the Traders wanted was time. They wanted time to pull something off, or make their escape, or get themselves properly hidden, before a properly functioning Unit got busy on Perryon. They didn't care what happened in two months, they just didn't want the Unit checking on them *now*."

"That makes sense," I said with some interest. "So we've got to get busy now and—"

Dick was shaking his head. "We threw that out," he said. "Four people hired to kill Lorraine. Hired, remember. We don't know that, but it's a safe guess. And hired by the Traders. That's another safe guess. What does that add up to?"

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I wasn't entering into competition with a Unit. "You tell me," I suggested.

"That wherever the Traders' base is, it isn't here," said Dick.

The way I've told this, maybe that's been obvious all along. I don't know. But it hit me like the six shells which had ploughed their way through Lorraine.

All really brilliant stratagems are simple. You conceal the essential thing so that your antagonists question everything else, but never think about that. You strew the field with difficulties which they'll solve, while the simple, ingenuous flaw is there in full view all the time. Like Poe's purloined letter.

The Units on Parionar would also be looking for Trader activities. But on Parionar no Uniteer would be assassinated.

The Traders had happened to pick on Perryon, and us. They'd had the sense not to try anything complicated or too obvious. We wouldn't bite if it was too obvious.

And the really clever thing about it was that the conclusions which were reached wouldn't be reached by a Unit but by the remaining members of a Unit. Naturally we'd report that Perryon was almost certainly the Traders' base, at any rate a spot to be investigated soon and thoroughly. Meantime the Traders, wherever they really were, would be lying low—and not giving any Unit in their vicinity anything to work on.

"The only thing is," I said, "that this is completely negative. It gives us nothing positive to report."

"We can make a guess," said Dick. "At one time both Jack Kelman and Rhoda Walker were on Fryon. Now the Traders must have contacted them sometime. And they wouldn't do it on Earth if they could help it. Fryon is the only world other than Earth which both Kelman and Walker visited. Rhoda Walker had been on Perryon, Kelman never. Fryon may not be the Traders' base, of course—but it's very probably where the contact was made."

I remembered scanning the information on the *Violin Song's* passenger list about Kelman and Rhoda Walker. "But they were on Fryon at different times," I objected. "And it was months ago."

Dick nodded. "I suspect they were recruited on Fryon, but not for any definite job. Just as people the Traders could call on. It was much later they got their instructions."

I wasn't convinced about Fryon, but I didn't have to be. If the Unit said it was so, it was my job to report it.

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IV

One of the guards came in with a wire. He shouldn't have left his post to deliver it, but that's typical of frontier worlds. It's only in highly organised communities that people pay rigid attention to detail.

The wire was from U.A. on Earth—in code, of course, but I didn't need any printed key to decipher it.

The name and address read : Edgar Williamson, Unit Father, Perryon. Just that. And if either my name or designation had been left out I'd still have got it. At such times I felt I was somebody.

"From U.A.," I said. "'Reason here to suspect Perryon. What progress?'" I looked at it a shade bitterly. "That's like U.A. They know we've got a member badly injured, and they still expect progress."

I took a sheet of paper and wrote. I handed the result to Dick.

My message read : *Perryon is not Traders' base. Williamson.*

Dick was frowning.

"Something wrong with that?" I asked.

"You can't send this," he said. "Remember how they'll treat anything we send them. They'll take it as fact and act on it. It's only our guess that the Traders had Lorraine attacked as a red herring."

"But Units always work on guesses like that."

"Yes, if they're sure enough. Lorraine wasn't more than fifty per cent effective when we decided that. We could be wrong."

I hesitated. My impulse was still to send the first message. It appealed to my sense of the dramatic to send a terse, unequivocal reply like that.

Dick, however, was the real boss of the Unit, not me. If he wouldn't take the responsibility for sending that message, the Unit wouldn't take it, and I had no right to send it.

"All right," I said reluctantly. "How about this?"

My substitute message consisted of one word : *Pending.*

Dick nodded. "Perfect," he said with a grin.

Units aren't sent out for unrelated information, to report back to U.A. At least, if they are, they're told exactly what information is needed. In our case it was whether Perryon was the actual home of the Traders. It wasn't our job to send back information at random and let U.A. draw the conclusions—we were there to draw the conclusions as well as collect the information.

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Since we could do no more on the question of the Traders meantime, we devoted our attention to that other job—settling Perryon's North-South altercation.

Dick consulted by a manufacturing firm in Sedgeware, fixed things so that a big contract went to Twendon. He went to Twendon to fix up the details. He gave good reasons for his recommendation, without admitting either in Sedgeware or in Twendon that the real reason was that by this much Twendon was elevated in industrial importance and Sedgeware diminished.

Ione, on a visit to the North—we were staying in Sedgeware while Lorraine was in hospital there—went to Foresthill instead of Benoit City. She spent some time there, for no obvious reason. We knew that every move by every one of us was closely examined for special significance, and we knew that people would be wondering what Ione's visit to Foresthill portended. At least some people would guess that Foresthill was soon to assume a special importance.

Helen opened a new library at Twendon. Her speech, without being blatant, hinted that Twendon was the real cultural centre of the South.

We began to be a trifle unpopular in Sedgeware. We could no longer hide the fact that we didn't regard Sedgeware as the proper capital for the South.

We replied apologetically that it couldn't be helped—Sedgeware was already overdeveloped and Twendon was the coming power in the region.

Some people thought this over, and knowing we must be right, withdrew capital from Sedgeware and invested it in Twendon. Young men and women from the smaller towns, looking for a job, no longer went to Sedgeware but to Twendon instead.

Helen and Ione began to appear in clothes which were anything but normal Earth wear. They were smart, simple, mostly in bright towelling, easy to change and wash. They were exactly right for Sedgeware's warm, humid climate, and it might have been an accident that they were in no way like the fashions of Earth. Soon the women of Sedgeware were copying them.

Dick and Brent and I went around in shorts. Gradually the fanatically Terran appearance of everybody and everything in Sedgeware began to change.

In less than a week we had given the Sedgeware to Twendon change-over such a push that only we ourselves could have stopped it. It would be some months before Twendon was the acknowledged leader in the South, acknowledged even by Sedgeware, but the change could no longer be prevented.

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We completed our preliminary campaign by moving from Sedgeware to Twendon ourselves as soon as Lorraine could be moved. Though it wasn't actually stated, we gave the impression that we believed Lorraine would get much better treatment there. It was true, anyway. Twendon realised that we were putting it on the map, and was duly grateful.

At long range we had been taking steps to do the same thing with Benoit City and Foresthill. We had to be more subtle in this case. The second time you try a thing it isn't so easy.

We had a piece of good luck. Perryon needed a new spaceport. It was to be built with funds from Earth, not local funds. The merchants of Earth were always prepared to finance such schemes because, despite the local tariffs, there was still a huge volume of trade between Earth and all the planets, and even poor Perryon was worth a major spaceport.

We got in touch with U.A. on Earth and had the site of the proposed spaceport changed from Benoit City to Foresthill.

It wouldn't be built for some time yet, but everybody knew that it was being built at Foresthill instead of Benoit City—and nobody knew that we'd made the change.

Gradually Foresthill began to grow in power, like Twendon. And already we could see some of the results of our labours. Sedgeware and Benoit City still fought, were still deadly rivals, but it didn't matter so much. Soon it wouldn't matter at all.

A long radio message arrived from U.A., Earth. It was addressed to the Unit Fathers on Gersten, Camisac, Fryon, Parionar, Maverick, Perryon—forty-seven in all, and it read :

Trader activity must be stopped. Three fleets are cruising in your areas and a direct call from any one of you will bring one of them to you within twelve hours. We know the Traders are based on one of your worlds. Surely it is not beyond the capabilities of the Unit on the right world to establish the presence of the Traders ?

Please send out, each of you, on the open wave, your estimation of the probability that your world is the Trader base. Impossibility, one. Complete certainty, ten. Send nothing but this figure unless you have reason to believe that the base may be on some particular world not your own. Send this in code.

We repeat—we find this continued silence from forty-seven Units almost incredible. The Traders cannot possibly be so well hidden that no Unit can discover them—unless

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they have developed a different form of interstellar travel. If any of you has heard any hint that this may be so, report it immediately.

"Yes, it is odd at that," Dick murmured, as he read the message. "How is it that the Traders haven't been discovered —by forty-seven Units?"

He looked up at me. "Lorraine's out of all danger now, Edgar. We've got to have a real high-power session."

I nodded. The U.A., like many another semi-military authority, was accepting no excuses. We had a complete Unit on Perryon, and the services of a complete Unit were expected of us—even if one of us was in hospital.

We went to the hospital. Lorraine's bed was moved to a small private ward and the door locked.

"You look healthy enough now, Lorraine," I said.

"Yes, I've put on fourteen pounds—isn't it awful?" she exclaimed. Even cleared, a woman is still a woman.

"You could stand it," I grinned.

"No—three or four, maybe, but not fourteen. Let's get started. If I can loose a few pounds in nervous energy, so much the better."

It was like the last session I'd seen, and I understood no more of what was going on. But thought I hadn't seen the Unit at work the last time, just after Lorraine had been shot, I could see that this was very difficult. Lorraine lay back in bed, relaxed, yet even I could feel the vitality of her contribution.

It's always a guess who supplies what in a Unit. Even the Uniteers themselves don't know. As I watched this session I got the idea that Lorraine was the real force behind this Unit. The heart, if you like. Dick was the brain, undoubtedly, and as such was very important. However, the brain in a human being is not the most vital thing. The heart controls the brain, not the other way round. The brain is tired when the heart makes it, alert when the heart allows it to be. Death almost always comes down in the last resort to heart failure.

Any time the Unit seemed to be stopped, it was Lorraine who started things going again. Brent, Helen and Ione introduced things, but they had to be taken up by Dick or Lorraine before they came to anything. Dick's suggestions and conclusions were never summarily thrown out except by Lorraine.

Seeing Lorraine's importance to the Unit, I wasn't surprised when I realised that the first thing they had done this time was throw out all the conclusions they'd reached the last time.

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Presently I saw that they were really on to something, though I had no idea what it was. Soon after this I gathered that they were looking for something, trying to locate something or other not by looking for it, but by probabilities—the way they had drawn up a list of three possible assassins in the ship from the passenger list.

I wondered if they thought they could determine the Traders' base by inspired guesswork. It seemed unlikely. If that had been possible, one of the other forty-six Units would have done it long since.

Yet I knew Units, like individuals, differed in their capabilities. And I thought mine was a particularly good Unit. I knew, of course, that most Unit Fathers thought that—just as most parents thought their child the most wonderful in the world.

Suddenly the session was suspended—suspended, not stopped. They were all looking at me, except Lorraine, who had closed her eyes, suddenly looking tired again.

"Edgar," said Dick. "Go and find out who the first man was who opened this North-South split. Who actually started it. The first speech in the Assembly, the first article in a paper, whatever it was. Go back as far as you can. Never mind the later people, the people who took it up. Get two names—someone in Benoit City and someone in Sedgeware."

I got up. "Do I have to keep my interest secret?" I asked.

"No—we'll be ready to follow it up as soon as you've got it. Try the newspapers, the Assembly records before the split, the police. You'll probably have to go to Benoit City. Come back when you've got two names."

I didn't ask for any more information. I left them—reflecting wryly that this showed exactly how important Unit Fathers were. When his Unit was in full cry it ordered him about like an errand-boy, and he did as he was told.

I went to the *Twendon Times* office and asked to see the librarian. It wasn't the librarian they took me to see but the chief editor. If I was only an errand-boy to my Unit, I was a very important person to everybody else.

"I only want to have a look at your files," I protested. "I needn't take up your time, Mr. Carse."

"I know all that's in the files," the lean, hungry-looking man behind the desk informed me. "Is there a story in this, Mr. Williamson?"

"There will be."

"What do you want to know Shoot."

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" Who started the trouble between Benoit City and Sedgeware ? " I asked abruptly.

He couldn't give me a straight, immediate answer. He knew everything the newspaper had reported, as he claimed, but I had to keep directing him. He suggested a lot of things, but there was always something earlier.

At last he said doubtfully : " Well, I guess the first thing of all was an article that came in . . . we didn't run it, but all the Sedgeware newspapers did. Only thing is, you wouldn't know that was the beginning until afterwards—when you knew everything, I mean."

" That's what I want," I said confidently. " What was in the article, and who wrote it ? "

Dick had asked for two names. I had one of them, and it had taken me less than half an hour to get it. The other wasn't going to be so easy to get.

I flew to Benoit City. It took fifty-five minutes.

Benoit City had never been as friendly toward us as Sedgeware. That was natural, for Benoit City was never as friendly toward anybody as Sedgeware was.

North and South are pretty much the same anywhere. The North is business-like, in a hurry, brash, confident, hard, cynical, with the heart of gold well concealed by the pocketbook. The South is hospitable, friendly, easy-going, lazy, romantic, tradition loving, happy, optimistic.

Again I went to the local newspaper. Again I was shown into the presence of the chief, only this time he was called the managing editor. His name was Morrissey.

Morrissey heard what I had to say, then said immediately : " What you're looking for is something a visiting actress said. It was . . . "

He told me what it was, and he was right. That had set things moving so that in Benoit City a short time later the council had voted against the teaching of Earth in schools.

But I was at a loss. The actress had been on a tour of the galaxy and had probably forgotten Perryon by this time. She wasn't in this, I was certain.

" Who spoke to her," I asked, " before she said that ? Who in this city, I mean ? "

" Just one of my reporters. Jenson. I'll get him for you."

" No," I said quickly. " Don't say anything to him."

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"If there's a story," said the editor bluntly, "is it mine?"

"It's yours," I said. "But you'll have to share it with Carse of the *Twendon Times*."

"That's all right," he said. "They don't circulate here."

I left him and flew back to Twendon.

I'd been away from the ward where the Unit was deliberating for three hours. But they were still at it when I got back. I cast an anxious glance at Lorraine.

She grinned weakly. "I think I've lost my fourteen pounds," she said. "But we're through now. Go away, all of you, and let me sleep."

Dick, Helen, Ione, Brent and I filed out.

"Before we do anything else," I said, "that reply has to go to the U.A. Do you realise we got the radiogram four hours ago?"

"Is that all?" said Dick. "Seems like years." He was tired too. "Send *Nine*. And put out a direct call for a fleet."

I gaped at him.

"I'd like to make it *Ten*," Dick said, "but we're not quite certain enough."

I got the two calls away without delay. It's no use being impatient with a Unit. They won't tell you anything until they're good and ready.

"Now we have twelve hours," said Dick, "to do a lot of work."

"Seven," I said. "Twelve hours was maximum. The fleet will be here in seven hours."

Dick groaned. "And we can't take Lorraine with us," he said. "Oh, well. What was that first name?"

"Look," I said, "I have to know something. You don't need to tell me the whole story, but I've got to know what we're trying to do."

"Instead of trying to keep us away," said Dick, "the Traders wanted us here. They even started the domestic squabble here to make sure a Unit was sent out. We were supposed to be sent here, lose Lorraine on the way, or here, it didn't matter, decide this wasn't the Trader base, decide Fryon was, and give that to U.A. as our conclusion."

"You mean the Traders thought they could outsmart a Unit?" I exclaimed.

"A Unit minus one," Dick reminded me. "But even when they knew Lorraine wasn't dead. I don't think they were worried. Which means they were very confident."

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"Which means they were crazy!" I exclaimed.

Dick shook his head. "Which means they had a Unit of their own," he said.

I didn't say it was impossible. I didn't say anything.

We started out to look for George Zamorey, who was the man who had written the article which sparked off the Sedgeware attitude.

He was a young, nice-looking fellow. When he saw us he looked puzzled, but not puzzled enough.

"So you're the one," said Dick. "I thought we'd have to go further, find who told you to say that."

"I don't know what you're talking about," said Zamorey.

"Oh yes, you do. Have you by any chance got four friends?"

He was watching Zamorey very closely. Zamorey's reaction couldn't have been right, however. Dick was disappointed, and made no effort to hide it.

"What do you know, Zamorey?" he demanded.

"I don't know what you—"

"We haven't time," said Dick impatiently. "Brent, you'll have to persuade him."

I never liked strong-arm methods, and if I'd known more of what was going on I'd have stopped Brent. I wish I had anyway. Zamorey must have had a poison sac in his mouth. After five minutes of Brent's treatment Zamorey went limp and we found he was dead.

"One lead gone," said Dick. "We'll have to be more careful with the other one."

We flew to Benoit City, all of us. I went straight to Morrissey and had him send for Jenson.

He was almost too quick for us. He came all right, but almost before he'd opened the door, certainly before he'd entered the room, he'd seen us, slammed the door and was running along the corridor.

We chased him. Dick and I were useless, and Brent, though powerful, was slow. It was Ione who tore after Jenson like a greyhound. Brent was next, then Helen, then Dick, with me last.

Nevertheless I saw the capture. Ione sent herself flying at Jenson's legs and he came down. Jenson might have handled Ione, but he certainly couldn't handle Brent, who was on him in an instant.

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When I came up panting, Jenson was being held firmly by Brent and Dick was asking: "Who are your four friends, Jenson?"

To my amazement Jenson made no further resistance. He surrendered immediately and told us all we wanted to know.

Dick didn't find it strange. He said later that Jenson, being a sort of Uniteer himself, knew better than any ordinary person what he was up against and didn't waste time by pretending not to know what we were talking about. It still seemed incredible to me that Jenson cracked right away and told us everything.

It was much later that Lorraine, who always liked me, told me the real reason.

Units aren't loyal. They work for good, they work for law and order, they work for progress, because they consider these things better than evil, anarchy and regression. But they aren't loyal. Loyalty is trust beyond reason, and no Unit ever trusted beyond reason.

Units work for the U.A. because the U.A. is working for things they agree about. But if a Unit finds itself in an impossible position, it won't fight to the last man. It'll surrender.

As Jenson surrendered. This is what he told us.

The U.A., after all, wasn't the only organization which could make and train a Unit. The Traders had realised that to have any chance against the U.A. they'd have to have a Unit of their own. They'd bribed a psychologist to join them, clear five of the Traders and train them as a Unit working for them.

We should have guessed this sooner. It was inevitable that sooner or later anything used by the forces of law and order should be used by the other side too.

"If Kelman or West had done his job properly," Jenson told us, "we'd have beaten you. We knew what you'd decide. We could think as you were going to think. You were to decide our base was Fryon. The Unit on Fryon was to get certain hints once you'd given them the lead. Five of our ships were to be found and destroyed. After that the Traders would go under cover, and it would have been years before the U.A. bothered us again."

"Very clever," Dick agreed. "Only you were bound to fail anyway, Jenson."

Jenson frowned at that. "Because there were so many Units against us? That wouldn't have mattered. We'd have—"

"No, because you weren't a good Unit," said Dick.

"Nonsense. We're every bit as good as you."

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Dick shook his head. "No. Because you had to be trained to serve the Traders. You were given a bias."

"I know what you mean," said Jenson, "but you're wrong. We didn't have to be biased. We were Traders already, remember."

"Doesn't matter," said Dick. "You see, whenever you were cleared, you ceased to be Traders. Cleared, you became law-abiding, and if you'd been properly trained you'd have been a genuine Unit. You'd have realised the Traders couldn't be allowed to continue, and refused to work for them. They probably didn't tell you about it, but the men who trained you had to instil a compulsion—loyalty to the Traders. And you know as well as I do that any compulsion like that decreases the efficiency of a Unit."

Jenson shut his mouth firmly and wouldn't say another word. I think despite the compulsion he realised the truth of what Dick was saying.

We rounded up the rest of the Trader Unit ourselves. It was easy and undramatic. Like Jenson, each of the members we found realised the game was up and gave no trouble.

But there was a grandstand ending to the episode nevertheless—and everybody on Perryon saw at least some of it.

In a message to the police, when we were handing over the Trader Unit, we mentioned the fleet and its time of arrival. We knew that somehow the Traders would get this information. Although the police in general weren't under Trader control, the Traders were bound to have some access to all important official information.

The time we gave was an hour out.

When the Trader fleet took off to make its getaway before the arrival of the fleet, it ran right into them.

I've said already that the lucky man really manufacturers his luck. Units always seem to be lucky, because they fix things so that chance is generally working for them, not against them.

Only a Unit would have gambled on the chance that the Traders, warned, would rush to their ships and try to get away, giving themselves an hour's leeway. So only for a Unit could it pay off.

The Trader ships tried to fight, which was a mistake. Probably why they fought was because the Traders were angry. They hadn't expected anything like this.

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From Benoit City we saw the first Trader ship gleaming dull red, then rosy pink, then white. It seemed to light the whole sky. As it came down in a giant arc it must have been visible over a quarter of the surface of Perryon. And before it struck another ship had begun to glow.

The Traders scored a hit on one patrol ship. But it, ten times the size of the Trader ships and with more than ten times their defences, merely glowed with a curious green light and withdrew rapidly from the battle.

Two Trader ships glowed at once and slanted down across the sky, tracing fairy patterns. It was an incredibly beautiful sight. I stared at the wonder of it, and only as the first ship struck with a shock which could be felt but not heard realised with sudden horror that there had been men on that ship.

When I remembered that the battle couldn't be over too soon for me. I understood how an executioner must feel. We had sent those ships up to meet the patrol.

Before that we had left Rhoda Walker to go and warn Kelman and be strangled. We had staged an accident in which Kelman died.

I realised as yet another incandescent ship blazed across the night sky just what it was to be a Unit Father.

The Uniteers were amoral. They worked for the general good—but they did it like this, without mercy, without remorse, without the irrational but very human feelings of pity that often stop ordinary human beings doing harsh things they know should be done . . . for the general good.

Still another ship blazed through the colours of fire. I turned away. I couldn't take pleasure any more in the excellent job we had done.

"Let's get back to Twendon," I said, "and tell Lorraine all about it."

"Yes, we'll do that," Dick agreed. And he too turned his back on the destruction of the Traders.

J. T. McIntosh

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This is one of those delightful plot-ideas for which Australian writer Frank Bryning is becoming celebrated—the remote possibility of a vehicle in space being hit by a meteor. Mathematical computations point out that the chances are infinitely remote, but are calculated on the law of averages.

ON THE AVERAGE

By Frank B. Bryning

Anchored to the floor by his magnetic soles, Ted Price, B. Chem., sat back on his heels in the effortless, knee-hugging posture which was so easy to sustain in free orbit, where his weight was nil. And made brief notations on his check list. Before him and on either side the ladder-connected racks of the storage bay in Laboratory 4 spiraled up from floor to ceiling. Guard rails and wall clips embraced row upon row of gallon-capacity carboys of liquid chemicals, each scrupulously labelled.

Suddenly Price ducked and crouched lower at the sound, instant-short but menacing, of rupturing metal, shattering glass, and a high-pitched, brief whistle. Breaking foot contact, he flattened himself to the floor and pushed against the rack in front of him.

Backwards, an inch or two above the floor, he floated, until his feet touched the bulkhead beyond the open end of the storage bay, and he got them under him again. Keeping low, he peered cautiously upwards between fingers held over his eyes—and blanched at what he saw.

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Drifting and spinning in the air were a myriad fragments of broken glassware and globules of potent liquids ranging in size from fine raindrops to large oranges. Like soap bubbles from a child's pipe the liquids floated in the zero-gravity interior of the space vehicle, moving here and there at random—grazing, touching, colliding, coalescing, hissing, fuming, and rapidly filling the confined space of the storage bay with gases of unguessable composition.

A glance showed Price that six carboys—three on one shelf and three further along on the shelf below—had disintegrated as if a slash had been made at them, diagonally, across the shelving. Then his view was obscured by a white fog as, right before his face, a large globule of ammonia collided with another of hydrochloric acid, and enveloped him in an acrid cloud of irritating, stinging, ammonium chloride.

Shutting his eyes tightly he swung away, coughing and gasping to blunder into a grape-like cluster of ether globules.

"Dr. Waddy!" he choked as he groped his way along the bulkhead. "Look out for ammonia . . . ether . . . Look out . . ."

On the laboratory side of the storage bay partition Senior Chemist Charles Waddy gave no sign of having heard. With his feet gripped by floor loops, he swayed about before his bench, limply upright, a blood-red groove ploughed skull-deep across his scalp.

In Laboratory 3, next door, chemists Brocklehurst and Wright, who had been making quite a little noise on their own account with a grinding wheel and glass tubing, had noticed nothing amiss. After a few minutes, however, Wright found Brocklehurst regarding him intently.

"Something's wrong with our air," said Brocklehurst. "Your earlobe gauge shows an oxygen deficiency. How's mine?"

"Yours too," confirmed Wright. "And it's getting cold in here. We're losing air!" Slipping his feet from the floor loops he dived across to the intercom. "I'll report."

Brocklehurst remained where he was, his eyes scanning the wall to his left, which was the outer wall of Vehicle Five—Chemistry—on Satellite Space Station Commonwealth Two. After twenty seconds he, too, slipped his foot loops, dived across the room, and jerked open a small drawer built into the wall bench.

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"Report also a half-inch perforation in outer wall of Lab Three," he called to Wright as he took a four-inch disc of rubber from the drawer.

Levitating across to the perforation through which the air was hissing, he first explored its edge with a fingertip. Then he peeled the calico from the adhesive underside of the rubber disc and slapped the patch over the hole. Dimpled in the middle by the air pressure, and sealed by the cement of its underside, it remained rigidly in position.

Facing about, Brocklehurst studied the bulkhead to his right for several seconds.

"And there's another hole—same size—in the bulkhead between Labs Three and Four!"

Meanwhile, Dr. Frank Thomas, Chief Chemist, and Officer Commanding Vehicle Five—Chemistry—had begun to make the "all lines" connection on his intercom on his own initiative.

"General emergency!" he announced before Wright had quite finished his report. "Attention all personnel, Vehicle Five! Prepare to get airtight! Prepare—to—get—airtight!"

He swung towards the wall and closed two switches. "All emergency airtight doors and air-duct cut-offs now closing. All air control sectors now isolated. Suspect we have been holed by a meteorite of approximately half-inch diameter in region of Laboratory Three. All personnel check condition of air and report to Air Control . . . Laboratory Three personnel, please attend."

"Laboratory Three acknowledging," came Wright's voice at once.

"Lab Three personnel please check perforations and estimate path of meteorite through section of Vehicle—and report. Proceed."

Thomas turned from his intercom to call Vehicle Two—Administration—by radio-phone. But Wright again broke in: "Reporting from Lab Three. There's a seepage of irritant gas from Lab Four through perforation in bulkhead. Smells like ammonium chloride, mainly—"

Thomas whirled back to the intercom, his face tense. "Get into oxygen helmet and skin protecting gloves—you and Brocklehurst," he snapped, dropping the impersonal form of address. "Find out what's wrong in Lab Four and get Waddy and Price out if they're in trouble. Also bring out sample of contaminated air. Hurry!"

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He cut in Air Control, who were calling him.

"All sections reported except Laboratory Four," said Air Control. "No reply from Lab Four to our repeated call. Labs Three and Five report lowered air pressure. All other sections normal. Further report from Lab Three. Gas percolating from Lab Four through—"

Thomas cut off Air Control and flipped two other keys.

"Personnel Laboratories One and Eight get into space suits with radios immediately and report to me in person before fixing helmets," he ordered. "Hurry! Please be in my office in five minutes. This is urgent!"

Cutting off, Thomas swung again to the inter-vehicle radiophone and called Administration.

"Emergency!" he announced. "Vehicle Five—Chemistry—calling! O. C. Thomas speaking. Medical assistance required urgently. Please relay—and hurry! Vehicle Five penetrated by half-inch meteorite. Personnel of Lab Four evidently incapacitated. Injuries won't be known until they are evacuated from Lab. Evacuation now proceeding. Suspect two men overcome by gases known to be polluting air of Lab Four. Possible skin damage also. For Medical Officer's information, ammonium chloride has been recognised as principal gas. Please rush medical aid. Emergency decontamination and maintenance required also. But medical aid gets first priority."

From his desk, close by the after observation ports of Vehicle Two—Administration—Commander Mark Fraser, simply by turning his head, could look down upon the other eighteen Vehicles which made up Satellite Space Station Commonwealth Two. By sunlight, moonlight, or starlight the gleaming backs of the other units of his command were clearly visible to the unaided eye—in the assorted forms of spheres, drums, torpedoes, turreted discs, "doughnuts," and spoked wheels, according to their respective functions.

In two hanging echelons they circled Earth every ninety minutes with astronomical precision. From Adminstration Vehicle at the apex of the upper and leading echelon, they stretched away to port and starboard, each pair a step lower than the pair ahead—like an ever-widening staircase down to Earth below.

As Fraser listened intently to the radio speaker on his desk, relaying requests from O. C. Thomas and instructions from

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Administration for the relief of Vehicle Five, he swung his chair around to face directly aft.

Second in line away to his left—two 300-foot spaces back and two 200-foot spaces down—Vehicle Five was a disc eighty feet in diameter and fifteen feet high. From its centre projected two cylindrical turrets, one above and one below, each supplied with an airlock. Serenely, Vehicle Five rode in the formation, revealing no sign of the turmoil within.

Commander Fraser attended carefully to each manoeuvre in the battle being waged by Frank Thomas in the defence of his vehicle and his men. He had no intention of taking part—except, if need be, to speed up some retarded operation by the weight of his authority.

Thomas, the man on the spot, would know what the moves should be—he far better than anyone else. For the time being the resources of the entire Station would be at that hard-pressed spaceman's call, for Commander Fraser knew that his most effective role was to stand by and make sure that Vehicle Five got what it needed without delay.

It was perhaps, ironical that this should happen to Thomas, whose preoccupation with the probabilities of meteorite collisions—the main hazard to space-going vehicles and personnel—was notorious. For Frank Thomas was one spaceman who had no faith whatever in the so-called periods of immunity implied by the statistics.

Not that he seriously challenged the statistics themselves. Worked out on paper in the middle nineteen-sixties, they had been confirmed rather than modified by fifty years of intervening practical experience. They had, indeed, been a kind of manual of arms for operating satellite stations and space rockets since Satellite Space Station Commonwealth One had been established in this very ninety-minute orbit.

But Thomas did question certain glib assumptions which were supposed to be based on the statistics, and he could always be relied upon to put up a strenuous argument when his point of view was challenged.

According to the calculations a space-going vehicle presenting a target of approximately one thousand square feet might reasonably expect to be hit by a meteoritic particle of about thirteen millimeters' diameter or larger about once in 611,874 years. Or it might be struck by a particle of some five point twenty millimeters' diameter or larger once in 23,858 years. Or it might

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even collide with a meteorite the size of a fine sand grain—"1.12 millimeters' diameter," the statistics said—once in 233 years, on the average.

Fortunately most spacemen anticipated spending little more than ten or twelve years of their lives in space—a few, perhaps, up to twenty years. So they quite naturally rated their chances of never meeting even a sand-grain meteorite as better than an average sailor's chances of never being shipwrecked. According to the statistics, their anticipations were sound enough . . .

"*On the average*!" Frank Thomas would always insist. "Don't forget—the statistics mean nothing if they don't also mean an occasional inevitable hit as well as long periods of immunity! And don't forget, either, that the smallest vehicle here in 'Two' is more than *two* thousand square feet in longitudinal section. I refer to Station Commonwealth One, as you know. Most of us are bigger than three thousand square foot targets. Chemistry Vehicle is five thousand or more. *We* must divide those years of immunity, so called, by five! Our two hundred and thirty-three years become less than fifty!"

"One grain of sand in fifty years!" someone had once protested.

"Travelling at a hundred thousand miles an hour or more," Thomas had retorted, "even that would sting a bit! And don't forget that 'One' was out here only thirty-two years when something as big as your fist went right through her!"

"According to the statistics," was the reply, given with a grin, "that should make this vicinity safe for anything up to a half million years!"

At that point Thomas would throw up his hands in bitter protest. It was just the kind of gratuitous assumption which never failed to exasperate him.

"*On the average*!" his companions would chorus, knowing what he had in mind to say. And he would grin back, and not say it.

For he had explained too often that, although "once in a thousand years *on the average*" could mean that you might go a thousand years, or two thousand, without a hit, it could just as easily mean that you might collect the quota for two or three thousand years in one day—or one hour. And he had pointed out that if your one meteorite happened to be from a swarm like the Leonids or the Giacobinids, in the season, there would almost certainly be others close by, in space or time . . .

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It was therefore inevitable, as Commander Fraser appreciated full well, that from time to time a fragment of cosmic stone or nickel-iron large enough to survive the impact without volatilizing would whip through one or another of his nineteen vehicles like a bullet through a cardboard box, and then continue on its way.

So a standard procedure for such an emergency had been worked out long since, and personnel had been drilled in it. And so here he was at his post like any ship's captain on his bridge, in command while the well-planned techniques went into operation.

With pencil and pad he made occasional notes, for there were things to be learned in watching the system function and in observing such innovations as were called forth by the special circumstances of a particular occasion. His confidence in his crews was considerable, and this time he felt reassured because it was Frank Thomas in charge, a man whose special preoccupation with meteorite hazards should make him the right one to handle the emergency.

A movement on the outside of Vehicle Eleven—Medical—which headed the lower echelon, caught his eye. Two space-suited figures, each with a bulky satchel at his back, had emerged through the airlock and were hurrying around to the point nearest Vehicle Five. In a beeline they blasted off without delay.

Realising now that there was something he could do, Commander Fraser called Communications. "Which Maintenance Vehicle is preparing emergency decontamination and repairs for Vehicle Five?" he asked.

"Vehicle Sixteen," was the reply.

"Get me Officer Commanding Vehicle Seventeen by radiophone, please . . ."

Like babes in arms the casualties from Laboratory 4 were brought out by Brocklehurst and Wright and handed over, limp and weightless, to First Aid. Hastily dumping their helmets in wall clips the rescuers reported in person, with the sample of contaminated air, to O. C. Thomas, who had with him Senior Chemist Harrison from Laboratory Seven.

"Here's your sample, Harrison," said Thomas, nodding towards the stoppered flask brought in by Wright. "Give me a quick opinion before the Medical Officer gets here—then a detailed analysis as soon as you can do it."

As Harrison left with the flask Thomas called in the four men standing by in space suits. Then he spoke to Brocklehurst. "What happened to Waddy and Price?"

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"They're both unconscious," answered Brocklehurst. "Dr. Waddy has a scalp wound and might be both stunned and gassed. Price apparently gassed. By the smell—you can probably get it now from our clothing—both ammonium chloride and ether are present in quantity. The atmosphere in Lab Four is a white fog, typical of—" He mentioned an equation—NH-CL.

"Any idea how it happened?"

"Apparently the meteorite went through their stores bay, smashing some bottles. The air is filled with broken glass, globules of liquids, and—fog."

Thomas called again to Administration. "Please hurry medical aid. We are standing by airlock in Turret One to take in medical personnel."

"Doctors Buchanan and Seddon approaching your Vehicle now," replied Administration. "They will reach you in about forty seconds."

Thomas nodded to the four men in space suits, who were still holding their helmets in their hands.

"You heard? Get space-tight and proceed, please."

Before the two doctors were properly out of their space suits Brocklehurst had briefed them and handed Harrison's preliminary analysis of the sample of polluted atmosphere to Senior Medical Officer Buchanan.

In the sick bay, with his nostrils twitching at the sting of ammonia, and his eyes keenly scanning the faces of the victims, Buchanan opened his kit at once and took out a rubber bulb syringe and a bladder of sterile water.

"Eyes first," he said to Dr. Seddon. "Wash by squirting water."

Inserting the syringe in the twisted neck of the bladder he filled the syringe. Seddon did likewise with his own equipment. Returning the water bladder Buchanan took out a wad of cotton wool and bent over Price.

"Flush the eyes and then dry quickly," he intoned, suiting his actions to the words. "Flush again, and repeat several times. Never mind where the spray flies as long as it goes away from the eyes."

Drying Price's eyes for the fifth time he returned syringe and cotton wool to his kit and brought out a tube of unguent.

"Apply anti-burn ointment generously to the eyes," he advised, demonstrating on Price. Then he handed the ointment

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to Dr. Seddon, wiped his hands on some cotton wool, and drew on sterile rubber gloves.

"Now, while I inspect that scalp wound on your patient, Dr. Seddon, will you please clean up the face and exposed skin of this one and apply a smear of ointment? He's had the worse dose of gas."

"His breathing sounds worse, too," agreed Dr. Seddon. "Much more bubbling."

"Mucous discharge in lungs and bronchial tubes, as we might expect. Better stop it immediately with a shot of stropin—for both of them."

"A hundredth for the worse case—something less for the other?"

"Yes. Say a hundred-and-fiftieth for the lesser one. Or possibly a little more."

Both doctors worked in silence for some minutes. When Dr. Buchanan straightened up from his examination of Dr. Waddy's wound he looked grimly at Brocklehurst.

"Please request Administration to send a workshops tender as an ambulance—and urgently. We'll have to take both patients over to Medical." He turned to Dr. Seddon. "Dr. Waddy has sustained a depressed fracture. Pressure on the parietal lobe, I feel certain. We'll have to trephine. We'll take Price also—for observation and treatment."

Brocklehurst was already calling O. C. Thomas by intercom. A few moments later he turned to Dr. Buchanan.

"Ambulance tender now making corridor seal with airlock in Turret Two of this Vehicle. We will be ready to receive patients in three minutes."

"Good!" exclaimed Buchanan, and turned again to his patient. Then he straightened up once more. "But surely not—yet? How—so soon?"

Brocklehurst shrugged. "The tender has been standing by alongside for some minutes. With Commander Fraser's compliments. He anticipated the possible need . . ."

Commander Fraser watched as the Chemistry Vehicle's concertina-like corridor tube was unsealed from the ambulance tender's airlock and retracted. Lines for and aft were cast off and drawn into the tender, and the two space-suited men from Laboratory Eight slowly manhandled the tender away from Vehicle Five.

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Slowly the egg-like tender swung about in response to its trimming gyroscopes until its attitude was correct for approach to Vehicle Eleven—Medical. Its jets fluttered for a few seconds only, and as it drifted down towards Medical it slowly turned about again, to approach jets foremost. Precisely the same measured few seconds of firing brought it to a near-stop within yards of Vehicle Eleven, where now three space-suited figures awaited it.

Quickly the lines fore and aft were ejected, made fast, and the tender warped in. Another spacetight corridor connection was made for transfer of the patients.

Back on Vehicle Five two writhing, sausage-like forms ballooned suddenly forth from the outer hatches of two space-cupboards of Laboratory Four, as the polluted air was evacuated from inside.

The outside men removed the two bladders, moored them to the hull of Vehicle Five, and affixed two others. These, a short time later, were similarly inflated, although less tightly than the former two, as the space-suited men inside Laboratory Four operated the hatches in the diminishing, rarefying, and chilling atmosphere.

After six filled envelopes were moored to the outside, both space-cupboards of Laboratory Four were opened to space, and the last faint remnants of the attenuated atmosphere were allowed to go to waste.

The six envelopes of contaminated air had contracted to twisted rigid " ropes " by the time Commander Fraser returned to his desk six hours later. Having radiated their heat away into space, their contents had contracted, liquified, and frozen into solid incrustations which would later be retrieved, separated chemically, and re-bottled.

Even the broken glass trapped by the wire mesh screens across the inner hatches of the space-cupboards would be re-melted and blown into laboratory glassware again. For the economies of space-going vehicles is such that it is important to conserve every ounce of material once transported into space rather than expend rocket fuel, in the costly mass-ratios involved in the Earth-to-Satellite ferry services, on one unnecessary ounce.

On Commander Fraser's desk was clipped a brief report and a transcript of the major intercom, radio-phone, and video conversations recorded during the episode aboard Vehicle Five. After perusing these documents and an up-to-the-minute medical report from Dr. Buchanan, Fraser called Communications.

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" Leave a message with Vehicle Five asking O. C. Thomas to call me when he returns to duty," he requested.

Moments later, Communications called back. " O. C. Thomas on Vehicle Five is on duty now, Commander. Shall we— ? "

" Get him please—on video."

As the screens to the right of their desks cleared simultaneously, Commander Fraser and O. C. Thomas looked one another in the eyes. Thomas was drawn and weary looking.

" Have you rested during the past six hours, Dr. Thomas ?" Fraser demanded.

" Well sir—I wanted to be sure everything was ship-shape before—"

" As from now, my boy, you go off duty for twenty-four hours and get some rest. I'll arrange your relief."

" Thank you, Commander. But I should first inspect the repairs to—"

" Nonsense ! Don't be so damned conscientious, Thomas ! You can leave those things in charge of the maintenance captain now. He'll have to report to you in any event, later."

" I know sir. But I feel responsib—"

" Your responsibilities on this occasion have been fully discharged long since—and superlatively well, too. Thanks to your prompt handling of the emergency both Waddy and Price will come out of it without permanent injury."

" I am very glad of that news, Commander. Thank you."

" And your Vehicle has been ably defended and commanded," Fraser went on determinedly. " You are to be commended on your handling of the situation. When you are back on duty you can elaborate on some of these notes, and we'll gain a few points to improve Standard Procedure. Your improvisations were excellent, without exception."

" You flatter me, sir. I feel that I merely reacted to each problem as it arose. I had nothing preconceived except Standard Procedure."

" Other than your well-known preoccupation with this very subject ! But we'll take that up later. Meanwhile you must go off duty. That is an order ! "

Thomas saluted in acquiescence.

" I have only to pass on to Maintenance this requisition for immediate replacement of oxygen and helium lost, or temporarily fouled in flushing Laboratory Four," he said. " We are right out of reserves, so may I count on you, sir, to approve and relay it as urgent ? In case of emergency we would be—"

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"I shall, of course!" said the commander promptly. "But don't tell me you expect another emergency within twenty-four hours or so!"

Thomas gave a tired grin in answer to the quizzical gleam in his superior's eye. "My obsession on that point is well known, I admit, sir. But it could quite easily—"

The sound of a single, sharp smack, and the sight of the loosely-held papers fluttering from Fraser's hand startled both of them. Withdrawing his hand from his cheek. where it had gone automatically to touch a sharp, stinging burn, Commander Fraser looked in horror at his fingertips.

"Blood!" His eyes again met those of the younger spaceman. Catching a floating sheet of paper he examined it, then held it up to show Thomas a neat, pea-sized hole drilled through it. "I see what you mean!"

Whacking the paper down on his desk he flipped a row on intercom keys.

"Emergency! Attention all personnel, Vehicle Two! Prepare to get airtight! Prepare—to—get—airtight . . . !"

Frank B. Bryning

THE LITERARY LINE-UP

Author Kenneth Bulmer has developed into one of the rising stars of British science fiction during the past year. So much so that we prevailed upon him to write our next serial, which has more than come up to expectations. "Green Destiny," commencing next month, is an under-ocean story concerning farming the Continental shelves, of warfare between the various commercial combines involved, and bitter rivalry between the Under Ocean Patrol and the Interplanetary Control for world funds to develop their own particular researches. Plus a lot of other feasible ideas now being developed by skin-divers.

Story ratings for No. 53 were :

1.	Tourist Planet (Part II)	James White
2.	We're Only Human	John Kippax
3.	Birthright	Arthur Sellings
4.	Tree Dweller	George Longdon
	The Neutral	Alan Barclay
	We Call It Home	Sydney J. Bounds

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Mr. Guthrie's literary efforts are none too frequent, but when they do appear they are usually worthwhile. For instance, in the first contact between human and alien which would be the greater ideal—the hand of friendship or the mailed fist ?

THE GREATER IDEAL

By Alan Guthrie

On earth the statue is of bronze, gigantic, imposing, a true work of art. On Mars it is of sandstone polished to an incredible smoothness while the one on Venus was carved from a solid block of crystolite. The materials, like the size, do not matter. Whether it is of bronze, sandstone or crystolite, the planetary monument—or one of the countless smaller ones made from every imaginable material and set in towns and villages, hung against walls or set in medallions—the image is the same. That of a man, arms extended in welcome, head tilted as if to stare at the stars, a smile on his face and his thin, aesthetic features set in resolute determination. There is an inscription, a simple thing but of six words : *HE MADE US WHAT WE ARE.*

There are those who insist that it is not a true likeness, that the eyes should have been covered by the old-fashioned spectacles he wore. But it is hard to portray spectacles in sculpture, invariably they hide the eyes behind blank windows and the eyes are very important.

For it was the eyes of Michael Denninson which first saw the Houmi.

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The ship was a leaking old freighter beating around the fifth decant in search of the rich minerals of the Asteroids. It was common of its type, a metal can mostly cargo space, the rest loaded with stores and supplies, some mining tools and explosives, the whole powered by an erratic atomic engine.

Michael Denninson was the astrogator and one half of the crew. He was a tall man with weak eyes and girlishly slim. Physically he was not strong but, in space, animal strength is not important. He was strong where it counted most and his brain and skill governed the ship. Holden was the captain, a dour, grizzled veteran who drank often and slept much. He was asleep when Michael first caught the flash of reflected sunlight. He awoke as the rockets kicked to life.

"What is it?"

"Something bright at two o'clock." Denninson pointed at the telescreen. "See it?"

Holden grunted, rubbing his chin. He stepped up the magnification of the screen as the flash was repeated and swore at what he saw.

"Metal. That thing's a ship."

"That's what I thought." Michael adjusted the controls and, in the screen, the flashing object moved to a point directly ahead. "Salvage?"

"Could be." Holden was eager now. Salvage was always profitable even though it was nothing but twisted metal. Such metal would be refined and be worth more than any of the common ores. And there might be other pickings. "Better try them on the radio," he suggested. "They might still be alive in there."

The radio brought no reply and neither of them had really expected any. A ship, twisting out of control among the Asteroids, could only be a ship that had been abandoned. The risk of collision with a hunk of cosmic debris was too great for any crew to have willingly run. They would have abandoned ship long ago.

As they came closer Michael caught the first hint of something unusual.

"Odd shape," he mused. "Do you recognise it?"

Holden didn't. The vessel was a polyhedron and outside of his experience. Most ships were dumbell or torpedo shaped or, as in their own case, a series of spheres united by external struts.

"An experimental job, perhaps?" His eagerness increased as he thought about it. "And no signs of external damage. We're in luck."

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"Maybe." Michael was working at the controls. "I'll try them with visual. Their radio could be wrecked but, if there's anyone alive in there, they'll see our signals."

From a point on their hull a low-powered rocket streamed a trail of fire, exploded in a flaming gush of brilliance, hung glowing in the void for a long moment and then faded in an expanding cloud of luminescence. Again Michael repeated the signal, a third time, then Holden released his breath in a sigh of regret.

From a point on the polyhedral hull a winking glow replied to their signal. The ship still held life.

What followed was routine and a perfect example of Michael's skill. He played the jets until they had matched both velocity and revolution, coupled the contact tube to a dark spot which had yawned on the strange hull and flooded it with air. Together, without suits, without weapons, with no thought than that of offering aid to their own kind, the two men entered the other ship.

And met the Houmi.

The meeting was momentous, though at first it didn't appear so. The mind cannot grasp more than a little at a time. First there was the strangeness, the thrill of meeting, for the first time in recorded history, another intelligent race. Then there were the questions, the million unanswerable questions which had to be left for sheer lack of communication. And, finally, there was the problem of what had to be done.

"Aliens." Holden shook his head at the wonder of it. Both he and Michael had returned to their own vessel. "Who'd have thought it?"

"Humanoid," said Michael. "Man-like in almost every respect." He moved restlessly about the control room. "Do you realise what this means, Holden? Can you grasp it?"

"I think so." Holden was a realist, a practical man undisturbed by self-doubts and self-questioning. "We've bumped into something really big. I wonder where they came from?"

"I'll find out," promised Michael. "I'll find out many things." His eyes, behind their spectacles, gleamed with vision. "Think of it, Holden. They have come from outside the system, from another star. Their technology must be far higher than our own."

"How can you know that?"

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"They are too much like us to have come from within the system. They breathe the same air, have the same eye-structure, and their ears are pointed but much like our own." He nodded as though it was already settled as a fact. "Different, of course, but no more different than a negro is from a white man. I'd be willing to bet that they could live comfortably on earth."

"I see what you mean." Holden was thoughtful. "They must have some form of an interstellar drive." He stared at the astrogator. "We must get that drive."

"We must help them to repair their ship."

"The drive comes first." Holden sucked in his lips. "Think of it, Michael! With an invention like that we could be rich."

"Money!" The way Michael said it made it sound like an insult. "Is that all you can think of?"

"No." Holden didn't take offence. He had argued with Michael before and neither of them had ever reached an agreement. Denninson was a peculiar man, which was why he and Holden could operate successfully as a two-man crew. He was much given to reading; old books written by people long dead and spent long hours staring at the majesty of the universe. He was an idealist, a fact Holden knew. That he was also a fanatic was something the captain had yet to find out.

"Look," he said patiently. "What have we? A strange ship from somewhere outside. Luckily for us it has been damaged and, luckier still, we found it before it crashed on the rocks. So that makes it ours to do with as we like. Agreed?"

"No." Michael was definite. "This ship isn't salvage."

"I'm not talking about salvage," said Holden. "I'm talking about common sense. We need that interstellar drive, they have it, we have them. Simple."

"You talk like a savage," said Michael. "These people aren't primitives to be exploited. If we take their ship and drive we will be worse than thieves. We will have stranded them far from home." He paced the floor again, his magnetic boots sending dull echoes from the hull. "And what if we do get the drive, what then?"

"We'll go out to the stars," said Holden simply. "What else?"

"And land on new worlds and give birth to more copies of earth." Michael shook his head. "It will be the same old story but this time played on a greater scale. The explorers first, then the merchants, then the armies and another race,

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another people subjugated beneath our heel. It happened to the negro. It happened to the red man. It has happened with monotonous regularity all through our history. Do you think that men will change overnight just because they have a new toy?"

"We need the drive," said Holden stubbornly. "Words can't alter that. We need it and we're going to take it."

"No." It was almost a shout. Michael realised it and lowered his voice. "Listen," he said urgently, "and try to understand. We'll get the drive, yes, but not by stealing it. We'll receive it as a gift from the Houmi. They'll give us the drive and all the other secrets of their technology because they will want to. We will be their friends, their brothers in space, and together we will share all that we own." His eyes were gleaming as he thought about it. "A new start, Holden. Another race to teach and guide us and lead us from the slime from which we sprang. Is it worth losing the greater ideal for the sake of a petty theft?"

Holden didn't answer. He sat, his head lowered, staring at the deck plates beneath his feet. He was thinking, not of the greater ideal expounded by the astrogator, but of things of more immediate moment. He was thinking of his life and the poverty that had been his and the riches waiting for him if he were strong enough and brave enough to take them. Michael was an idealist, he knew that, and privately considered the other man a fool. And yet he was a clever fool. He lifted his head.

"Talk," he said. "Nice talk, but talk just the same. How do you know how the Houmi will feel about this hand-in-hand stuff? They may not want to help us and we may not want to mingle with them. Just because they look human doesn't mean that they are human." He sucked in his breath. "They are alien, never forget that. More alien than bees are to men. Do we ask the permission of a bee before we take its honey?"

"Sophistry," said Michael impatiently. "Backwoods logic. You should know better."

"Maybe I do know better." Holden was annoyed. He did not like being spoken to as a fool. "So we fix their ship and wave them goodbye and then what? Maybe they'll never come back or maybe they'll come back in force. Either way we've lost." He rose to his feet. "Mix with them, yes, but on equal terms. You say that they'll act like humans, all right. I know humans and how they act, not from books but from life. The strong respect the strong. The weak respect the strong. Both despise the weak." He reached out towards the radio.

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"What are you doing?" Michael's voice was high-pitched, strained.

"This thing is too big for us." Holden tripped a switch. "I'm going to call up some help."

"And then?"

"Then we'll do things my way. We'll take the drive and anything else we can find. Later, when we've built interstellar ships of our own, we may go visiting. Or we may not."

"And the Houmi?"

Holden shrugged.

Michael was an idealist and a fanatic and so was far more dangerous than Holden had suspected. His dream had been nurtured by old philosophies and forgotten injustices and, in the face of the greater ideal, nothing could be permitted to stand in his way. Nothing. Not even Holden's life. He was regretful but determined.

"I'm sorry," he said. "But I had to do it."

"You almost cracked my skull." Holden tugged at his bonds and stared at the other man. "How long have I been out?"

"A long time." Michael hesitated. "I had to drug you after I stopped you using the radio. Then the repairs took longer than I thought. They are all finished now though." He stared at a point above Holden's head. "You were quite wrong about them, you know. I've learned a little of their language and they're quite sincere. They want to see earth, I'm travelling with them as a kind of ambassador, and they promise to return."

"And me?"

"I'm sorry." Michael lowered his eyes. "You'll have to stay here."

"Tied? Like this?" Holden strained at his bonds then relaxed. "That's murder," he said quietly. "Is that what you want?"

"I don't trust you."

"What's trust got to do with it?" Holden was frightened now, Michael meant exactly what he said. "What harm can I do? You've had your own way, the Houmi's ship has been repaired, what more do you want?"

Michael didn't answer.

"You're frightened that I'll upset your plans, is that it?" Holden laughed, a short sound without humour. "Well, maybe

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I'd try if I could. But what damage can I do now ?" He began to sweat. "At least you could cut me free and leave me the ship."

"The ship isn't spaceworthy," said Michael. "I had to use most of the parts for the repairs and I'll need the radio, of course, the Houmi don't use our type of communication. I'm sorry."

"You're going to lie," said Holden with sudden understanding. "You're going to tell them that the Houmi rescued you from a wrecked ship. You're going to say that because you want us to be friendly towards them and you think that lie will help things along." He sneered. "Crazy logic ! They helped us, therefore they must be friends, therefore we must be friendly towards them. Lies ! All lies !"

Michael rose to his feet.

"You fool !" screamed Holden. "You blind, stupid fool ! Don't you know that you're selling out your own race ?"

Michael stepped towards the door. He spoke once before he left Holden to his fate. "I'm sorry," he said. "I wish that you could understand."

"Go to Hell," said Holden, and turned his face to the wall.

Michael Denninson did not go to hell, not then, though he may have done later when he died by his own hand. He went to earth with his friends the Houmi where, partly because of his lie, they were made welcome. They gave us some of their secrets, little things of no real value but, we thought, a promise of what was to come. That was all they gave us, toys and the assurance that they would return. A promise which they kept only too well.

The Houmi look almost human but they are not human and, what is worse, they do not regard us as human. Human, that is, by their own standards. And yet they have a wry sense of humour. It was they who insisted on the statues immortalizing Michael Denninson, the most hated man in the entire history of the human race. It was they who permitted the inscription and in this they reveal their lack of irony. Or perhaps they just don't care. For as every schoolchild knows the inscription, as it stands, is true but indefinite. It lacks a hyphen and one other word.

—*SLAVES.*

Alan Guthrie

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ALONE

It is a pleasure to welcome back to our pages author Bertram Chandler, especially with the type of zestful short story by which he has become so well-known. Now living permanently in Australia he is an added asset to the small but growing number of writers who reside "down under."

By Bertram Chandler

Illustrated by JACKSON

You have no conception (he said) of what it's like. You may think that you know loneliness, you may have stood by yourself on a mountain top or on the beach of an unhabited island and said, "I am alone." But all around you—out of sight but only, relatively speaking a stone's throw away—have been the teeming billions of Earth. Your mind has been aware—subconsciously, perhaps, but still aware—of the emanations of love and friendship, courage, hate and fear. You have . . . belonged. Even Corderey, the first man to land on the Moon, was not cut off as I was ; the Moon is close, a scant two hundred and forty thousand miles. It is well inside the range—not that it matters now that the Colony has been established.

Corderey was lucky. He was never too far away—and, besides, his radio was working. And he had only to step out of his ship and look up at the sky to Earth, to home, a familiar globe, not a featureless point of green light in the evening or the morning sky. He knew that to return he would have to endure five days only in Space—five days, not nine months !

Yes, gentlemen, I know that you had decided against using a two man ship for the second attempt to reach Mars. I know

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that it is better for a man to be alone than for him to come, in time (and all too short a time !) to hate the comrade with whom he is cooped up in a tin coffin. I know that the risk of insanity is preferable to the risk of insanity *and* murder. I didn't know (but neither did you) of the psychic field, the aura, surrounding Earth. I took the risk—but I didn't know how great a risk it was.

I was about three weeks out when I first noticed the loneliness. Have you ever lost a loved one ? Have you ever, in the dead of night, awakened from a real, too real, dream of the past, and

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stretched out a hand and found not the warm, familiar flesh (gone for all time), but . . . nothing? Have you? Then you'll have some faint (you'll never know how faint, you're not young enough, not fit enough for the long haul) idea of what it's like. It was more than mental. It was emotional and—even—physical. The horror of the nothingness outside the control room ports made me vomit.

No, I didn't report it. I should have done, I know. But I was Iron Man McGinnis, the tough guy. McGinnis, the first man on Mars. (And I was—but it was a long, long road to travel before I got there). So I was tough. So I wasn't going to squeal before I was hurt—even though I was hurt; badly, irrepairably. After all—I had the radio. I had the dozen or so games of chess that I was playing with various people in the Lunar Base and the Space Stations. I had my long conversations, whenever I wanted them, with the Colony and the Satellites.

But there was no warmth in it. It was like talking with ghosts, with less than ghosts—for ghosts do, presumably, effect the emotions of human beings. And I was outside the range of Earth's emotional aura. All that I was getting was sonic vibrations transformed into etheric vibrations and transformed back into sound. There was no . . . feeling. It was like the effect (or the lack of effect) of a player piano on a music lover.

Even so, I made do with the radio for another month. Even though I was in an emotional vacuum it gave me intellectual companionship. I could even appreciate—although not fully—the outrageous stories of which old Willis, the Second in Command of Satellite Three, has such an unlimited stock. And there was, of course, the chess.

No, it wasn't too bad for a while. You can get used to anything—to *almost* anything—in time. And there was the knowledge—not the feeling, but the knowledge—that all Earth was behind me and that I could demand, at any time that suited me, a conversation with any one of her population, great or small, king or commoner, president or pauper. That universal hookup was, you say, the least that you could do for me—but it helped. I was alone, more alone than any man has ever been, but I was an emperor riding the empty skies and my subjects, although millions of miles away, were, within clearly defined limits, my slaves.

It was a blow when the radio went. You assured me, gentlemen, that my orbit ran well clear of all known meteor swarms,

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and I have been told often enough how astronomical the odds are against a collision between a spaceship and even a small meteor. Nevertheless, there was a meteor swarm—a large one. The radar gave warning and the automatic evasion units took over, giving me barely time enough to wrap myself around a stanchion to wait for the sudden accelerations and decelerations. Luckily I was in the hydroponics room at the time—I had remembered the experiments of and theories of Dr. Chandra Bose early in the century and was trying to goad the plants into some sort of emotional response—and not in Control. It might have been better, perhaps, if I had been in the control room.

I felt the impact and heard the explosion as the meteor hit us. I heard the automatically controlled airtight doors slam shut. For long seconds I clung to the stanchion—I didn't know whether or not we were clear of the swarm, whether or not the automatic evasion units were still working—and I didn't want to be hurled and broken against a bulkhead by a sudden blast from the Drive.

At last I deemed it safe to investigate. I broke out the emergency suit from its locker, shrugged myself into it. I squeezed through the sphincter airlock into the cabin. There was no damage there. I squeezed through the airlock into Control. The hole in the shell—remarkably smooth, it was, its edges fused by the heat of the impact—I saw at first glance. It would not be, I was relieved to find, too large to patch. The controls seemed to be undamaged, and the radar. Emmie—the Electro Magnetic Navigational Integrator and Calculator; rather strange that I should have given the thing a female name!—was ticking away quite happily in her corner. At first I was relieved to see that all the really important items of equipment had survived unscathed. I wasn't so pleased when I saw that it was the radio that had borne the full brunt of the impact. Even with the spares I carried it was beyond repair. Oh, I could have got it working by stripping the radar and Emmie—but I doubted my ability to complete the voyage without their aid.

It was after the destruction of the radio that I lost all count of time. I must have performed my routine navigational duties—although I can't remember doing so—because when at last Mars loomed huge and ruddy on the screens the ship had been swung on the gyroscopes, had already been subjected to the necessary deceleration. But I don't remember doing it. All that I remember is the endless hours of reading the microfilm

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books, the vague wonderment I felt that such people as the characters in the novels and biographies actually existed. The human race was something I had heard about once—but I found it hard to believe that such irrational beings had ever existed, could ever exist. ***But I was human***, I kept telling myself with a sort of desperate urgency. But I couldn't believe it. I couldn't *feel* it.

But we were coming in for a landing. I did all the things that I was supposed to do, made sure that the machines were doing the things that they were supposed to do. I'll not bore you, gentlemen, with the details. You know all about astronautics—on paper, at any rate. You know all about astronautics when it's a matter of only four days from the Station to the Moon.

I came in for the landing. The atmosphere was a little thicker than predicted, and a deal more turbulent. But the servo-mechanisms kept the ship upright, corrected every yaw. I should have been excited. But I was dead, dead . . . I was the first man on Mars—and I was less worked up about it all than a city office worker dropping down in his helicopter to his suburban back garden.

The realisation that the canals were, after all, just that raised a faint thrill. And then when I saw what was unmistakably a city—tall, shadow-casting buildings, a latticework of streets—I felt the stirrings of interest. A city meant—*people*. They might be, to my eyes, unholy monstrosities, but surely they would know emotions. Even if my coming inspired only hate and fear it would be better than nothing. It would be a cool, green oasis to a thirst-crazed traveller in the desert.

I took over the controls then. I did not bother to weigh the pros and cons. All I wanted to do was to land as close to the city as possible, to meet the Martians as soon as possible, to plunge my parched being into a deep, warm bath of raw emotion. I selected my landing place—an apparently level plain on the bank of the wide canal—and dropped with more enthusiasm than caution.

It must have been spectacular, that landing. We must have hit like a meteorite. But the ship was stout enough to take the shock, and so was I. After all—I was not called Iron Man McGinnis for nothing.

I didn't bother with any of the routine tests—atmospheric pressure and content, temperature and so forth. I zipped myself into a suit, hung weapons—my heavy pistol and an axe—on my

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belt and hurried into the airlock. I opened the outer door without bothering to pump the air in the compartment back into the ship. I scrambled down the ladder to the dry, ocherous rubble on which the ship had landed.

The city was little more than half a mile away. Its slender towers stood sharply against the dark blue sky. And there was movement around the towers, around their tapering spires. And the flying things, I soon saw, were coming towards me.

Like huge dragonflies they were, but all out of proportion. The bodies were too slender, the wings too long and too wide. Through my helmet I could hear the faint, high singing of their flight. As they drew nearer I could see that they were not living beings, but machines—the glitter of their bodies was unmistakably metallic. Yet there was something alive about the way they flew, something that argued intelligent, although not infallible direction.

They circled me warily, twenty of them, flying in line ahead in a wide circle. The whine of their rapidly vibrating wings was as maddening as that of a mosquito. I shouted at them, but they seemed not to hear. I jumped and waved.

I was mad, then. I was mad with disappointment and . . . hunger. I was expecting that now I had come to an inhabited world I should feel, once again, the subtle emanations given out by all life. But I was as lonely, as alone, as at any time during that long, long voyage.

I had to make them notice me. I had to make them *feel* something towards me—anything so long as it was strong enough, fierce enough. I had to feel their hate, their fear.

The pistol was in my hand. I took careful aim, making allowance for deflection. I fired. One of the flying things staggered in its flight, a pair of flimsy, shimmering wings drifted slowly to the ground. The Martian hit the ground first.

I ran to it, dropping the pistol and pulling the axe from my belt. I brought the blade crashing down on the long, slim body, laughing savagely as delicate springs and slender rods spilled out on to the coarse sand. I smashed in the head of the thing, laughing again as I exposed a grey pulpy mass that squirmed and shrank from the blade, that oozed a thin ichor on to the arid soil.

But still I felt nothing. Still I was alone.

Did these beings know no hate, no fear? They were organic—in part, at least. Death should mean as much to them as it meant to me, as it *should* mean to me. As it didn't . . .

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Slowly I walked back to where my pistol, gleaming and deadly, lay on the sand. Slowly I stooped and picked it up. The feel of it, the weight of it, were comforting. I was a dead man in all but physical fact. Soon—by the mere pressure of a finger—I should be a dead man. I was mildly amazed that I hadn't thought of it before.

But the infernal mosquito whine of the Martians' wings was stepping up its frequency, was painfully high and thin. I tried to raise my arm, tried to bring the automatic up to my head, but nerves and muscles were somehow out of my control. I tried to raise my eyes to look at the Martians to see what they were doing. I tried—but my head was immovable.

Then, suddenly, I was tired—very tired.

I crumpled to the sand.

I slept.

They were good to me, the Martians. I had killed one of their number, but they bore no malice. They carried me into their city and placed me in a pressurised room ; and when I awoke, greatly refreshed, I found that they had provided every comfort that it was possible for them to do.

One of them came into the room to talk to me. I did not find him at all repellent—he was elegant, graceful, so much so that I was keenly aware of my own gross body. He talked to me, I say, and told me that his people had been observing the Earth —and at close range—for generations. They had learned our various languages long since. Before I could express my incredulity he produced from a pouch belted to his body a bundle of newspapers, some of them fifty years old. He showed me, in these same papers, reports of mysterious objects seen in the sky reports of the sighting of things called " flying saucers." He produced a packet of cigarettes. The tobacco was dry and powdery, but it was smokable. He lit my cigarette with the tip of a metallic tentacle that glowed suddenly red.

He asked, then, why I had killed.

I told him. I told him of the loneliness, of the madness that had come with it. I told him that I was still lonely, that I was still alone. And as I talked I could feel the emptiness, the cold and the darkness sweeping back—and with them came the urge to hurt, to crush and maim, to make this being hate me before he died.

He must have made some sort of signal to those outside the room. From somewhere came the high, unbearable whine, the

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rigid paralysis gripped me again. My eyes were fixed on the vibrating metal diaphragm on what would have been the thorax of the Martian if he had been an insect.

"We have never been an emotional people," said the metallic voice. "Even before we became the hybrids that we are now —half organic matter, half machine—we were never emotional. But we know what a great part emotion plays in your lives. We have read your books, listened to your music. We have observed you. We have even devised instruments to measure emotional force—and I can assure you that you, on your world, live in an intense field of such force that is almost as essential to you as the air you breathe."

He asked abruptly, "Do you want to live?"

"No," I said.

"Then do you wish to atone for the . . . murder that you committed?"

"Yes," I said. "Kill me. Get it over with."

"But you must atone by living. You must be our messenger to Earth. You must tell your people what happens when they lift out and away from the emotional vibrations of their mother world. And you must tell them, too, that should any ships by some miracle reach our world with their crews still living, still more or less sane, then they will be dealt with ruthlessly. We have weapons that would make your fission bombs look like a child's toys. We have ships that could devastate your cities, your Space Stations and your Lunar Colony as soon as any ship of yours landed on Mars.

"Tell your people that."

"But how am I to get back?" I asked. "I'll never survive the journey."

"You will," he told me.

I did, and so I am sitting here ten miles to the north of Copernicus, watching you gentlemen in your pressurised tractors edging closer to me. I warn you, *Stop*! I have weapons—weapons I did not have when I left Earth—or, come to that, when I left Mars. I'm sorry that I've burned your motors out.

Sorry . . . Sorry . . . What *is* sorry? A figure of speech.

I can watch your tractors, and at the same time I can watch Earth, the green and gold globe hanging in the black sky. But it means nothing to me. Nothing at all.

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No, gentlemen, I did not go mad on the voyage back from Mars. My story is not, as you suggest, mere raving. Pick up your binoculars. Look at me, where the venturi should be. You don't see any venturi, do you? Neither did you see any exhaust flame when I dropped down to the Moon from Space. You will not suggest, surely, that alone on Mars, with no material, no tools, no equipment I remodelled my ship and built a closed cycle reactor? You would like the secret of that, wouldn't you? You would like to know how to maintain the hard vacuum abaft the firing chamber. But the secret is not mine to give away.

I promised that I would warn you. But I did not promise that I would let you operate on me, that I would let you restore my brain to the perfectly good body that is sleeping in the deep freeze chamber that the Martians installed for me. My brain was built into Emmie—EMNIAC, the Electro Magnetic Integrator and Calculator—and I'm part of Emmie now, and she's part of me. (You know, she had quite a definite personality . . . It still lives, after an odd fashion . . .) I'm a hybrid now, as the Martians are. I'm one of you no longer. (Neither am I one of them).

I'm immortal, they told me—or near immortal. There's plenty of life in my pile, and I should be able to replenish the fissionable material before it dies—although by that time I should have figured out a way of drawing my energy direct from the radiation that floods all Space.

I'm immortal, and my body, thanks to its closed cycle reactor, has practically unlimited range. I'll visit the Centaurian systems first, I think—just to try out my new wings. Then I'll make for the Coal Sack.

But before I go there's one thing I want from you. You'll not refuse me, I know. (You'd better not. And you'd better cancel that order to Earth asking for a couple of rocket loads of military—I can listen on more than one wavelength, you know). There's one thing I want—that big Electro Magnetic Computer, the one you call Mickie, in Base H.Q.

I'm still just a little lonely, and I'd like an occasional game of chess.

Bertram Chandler

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In the December issue of NewWorlds *John Newman discussed the possibilities of contra-terrene matter in an article entitled "Energy." In collaboration with his colleague Kenneth Bulmer he now brings you up to date with the latest information concerning this fascinating subject.*

CONTRA-TERRENE MATTER

By Kenneth Johns

The possibility of contra-terrene atoms existing in the Universe we know has intrigued scientists and writers for about twenty-five years. For contra-terrene matter, material formed from atoms with reversed electrical charges, sometimes known as C-T or seetee, may be the clue to an inexhaustible supply of energy and a fuller understanding of the complex internal structure of the atomic nuclei leading to a wider knowledge of the Universe itself.

Ordinary atoms are composed of a heavy nucleus of protons and neutrons held together by the binding force of mesons, around which sufficient negative electrons form a cloud to balance the central positive charges of the protons.

A quarter of a century ago Nobel prize-winner Professor Dirac evolved an equation to explain the action of electrons solely in terms of mathematics. Dirac was a brilliant physicist and mathematician, but even he was surprised when he found that there were two solutions to his equation, solutions for both negative and positive electrons. At that time no positive electrons

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were known ; but within two years positrons exactly fulfilling his predictions were discovered at the California Institute of Technology. In the study of cosmic rays it was found that an electron and a positron were created as a pair by the energy of cosmic rays.

By slightly altering his equation, Dirac found that it described the properties of protons, and again there were two possible solutions. The conception of the anti-proton was born.

By 1934 Dirac himself had postulated contra-terrene matter existing elsewhere—matter where positrons form a cloud around a nucleus containing negative antiprotons. This conclusion was reached in spite of the fact that there was no practical evidence of anti-protons existing anywhere in the Universe, although an intensive search was instigated for the missing particle.

Dirac's equation gave a clear picture of what this alien nucleon should be : with a mass of 1.6724×10^{-24} grams, an electrical charge of -4.8028×10^{-10} electrostatic units and extremely stable until it comes into contact with ordinary matter. An anti-proton and a proton should react in a microscopic by inconceivable violent explosion as the total mass of each is converted into raw primeval energy—just as positrons and electrons react.

Contra-terrene matter built of this hypothetical particle should also be as viciously reactive to all normal matter, and this seems as good a reason as any for its non-existence on Earth. One suggestion made was that the asteroid belt was created when a contra-terrene type intruder collided with the planet that once orbited between Mars and Jupiter. For *any* contra-terrene atoms would explode on contact with *any* normal matter. The concept of almost the whole of planetary masses being converted into pure energy is indeed a subject worthy of science fiction.

The search for the anti-proton was on ; but the possibility of creating them in pre-World War II cyclotrons was remote, as these early atom-smashers could accelerate particles to an energy of only a few million electron volts, whilst theory stated that at least 6,000 million electron volts (6 Bevs) was needed, a figure beyond the wildest dreams of physicists a quarter of a century ago. Talking wisely of ' Dirac Holes,' experimenters turned to cosmic rays, the natural high-energy particles smashing into the Earth's atmosphere with more energy than even present-day man-made machines can supply.

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During the next twenty years photographic plates sent up to trap cosmic rays were carefully examined for evidence of anti-protons, whilst the possibility of contra-terrene meteors striking the atmosphere was seriously considered. Several times physicists thought they had at last caught up with the elusive particle ; but always there was insufficient evidence to satisfy the more sceptical scientists. The obstacles were too great to be overcome easily : the experiments could not be controlled : the chance of an anti-proton being created was far too small high above the Earth where observations are intermittent and almost a practical impossibility.

Then came the spate of military and civil appropriations for nuclear energy research and, when it came to new apparatus, the physicists found that the sky was the limit. Spurred by the megabuck, particle accelerators jumped in energy from the few million volts of home-made units to fantastic projects designed to operate at billion electron volt levels. The synchroton now being built at Geneva has a 4,000 ton magnet with a circumference of 2,000 feet, will need power sufficient to supply a small town, and will accelerate particles to 25,000 million electron volts, 99.93% of the speed of light. The general effect of the ' energy race ' has been to double the power of accelerators every three years.

New words were added to the languages spoken in the research centres of the U.S.A., U.S.S.R., and Britain—Bevatrons, Synchrotons, Cosmotrons, Cerenkov velocity selection counters, quadruple focussing and alternating grading focussing, all had their meanings. The demand was for more and more energy with more intensive beams of particles. It became a matter of national prestige to possess or be building another milestone in the race to greater energies.

The Bevatron at the University of California at Berkeley was designed with the creation of anti-protons in mind—hence its rated capacity of about 6 Bev. The 6 Bevs needed in the production of the anti-proton are made up of 2 Bevs for the actual creation of the mass of the proton-antiproton pair and the remaining 4 Bevs are taken as kinetic energy by the energy-carrying and created particles.

This experiment is, quite simply, a dream come true : for this is the fabulous creation of matter from energy. The goal of centuries of work and the subject of countless fables is now an accepted scientific fact . . .

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The Bevatron at the University of California is made up of four quarter circle magnets, each 50 feet in radius. Protons, hydrogen nuclei, are injected by a small accelerator into the evacuated doughnut between the magnetic poles and then circle it 4 million times—a distance of about 100,000 miles—gaining speed and energy with every rotation. When they gain 6.2 Bevs they are directed onto a copper target where collisions produce a stream of high energy particles, including a few anti-protons. But, for every anti-proton created there are 40,000 mesons, particles intermediate in weight between protons and electrons. Once the energy is available, the problem at once became that of detecting the 1 in 40,000 particle that could be the anti-proton, the object of all this massive research.

Negative mesons and anti-protons were bent away from the main spray by a magnetic field, focussed and the speed of the particles measured to a thousand millionth of a second over a distance of forty feet. Two scintillation counters with an automatic timing circuit were used. The speed was vital, as anti-protons are heavier than mesons and should travel more slowly.

This timing method was not very successful on its own. Such a flood of mesons passed through the apparatus that spurious timing effects were obtained solely by the coincidence of mesons triggering both scintillators at the correct time.

Anti-protons, it was calculated, should emerge from the Bevatron at 78% of the speed of light. So a little known phenomenon, the Cerenkov effect, was brought into use for the final proof. When a spray of particles travelling at near the speed of light in a vacuum passes through a medium such as glass in which the speed of light is very much slower, a weird glow appears. This is the visible result of shock waves of light produced by the particles, and the angle at which they are emitted depends on the speed of the particles.

A Cerenkov detector was set up and screened so that only the light from particles travelling between 75 and 78% of the speed of light was measured by photoelectric detectors. Finally, another scintillation counter was placed at the end of the array to ensure that no stray cosmic rays activated the counters. Thus, a particle to be counted as an anti-proton had to have a negative charge, the correct momentum (a function of speed and mass) to be bent by the magnetic field, and a speed between 75 and 78% of the speed of light, to prove which it would have to pass through each component of the set-up.

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In October, 1955, the apparatus was complete and the starting switches depressed. It was a significant moment in the history of science. Then, to the watching and waiting physicists' delight, a characteristic trace on the interlinked oscilloscope showed that all their conditions had been met. On an average of four times in the hour they were watching the betraying trace of an anti-proton. When a total of sixty had been counted they were convinced that the anti-proton was a reality and released the news to the world.

Then came the job of tracking and measuring the destruction of anti-protons using photographic emulsions. The tracks and stars of annihilation of at least another twenty particles from the Bevatron were soon identified, having been slowed down by repeated collisions in matter until they could react with an atomic nucleus in a microscopic nuclear explosion.

Whilst protons spin in one direction in relation to their magnetic poles, anti-protons spin in the opposite direction. Too, first measurements suggested that anti-protons are larger in size but not in mass than protons and so seetee matter should give a different spectrum when heated.

And then, in September, 1956, the University of California announced the creation and discovery of the third anti-particle, the anti-neutron. Whilst the neutron has no electrical charge and so this cannot be reversed, it does have a magnetic field, and it is the reversal of this in relation to its spin that distinguishes an anti-neutron from a neutron.

The anti-neutrons were produced from anti-protons, themselves created in the Berkeley Bevatron. The workers found that not all of the anti-protons were immediately annihilated when they were slowed down by ordinary matter. A few of them passed close enough to ordinary protons for their electrical charges to neutralise one another with the formation of a neutron, from a proton, and an anti-neutron, from an anti-proton.

The presence of the anti-neutrons in the beam from the Bevatron was proved by first screening out all the remaining anti-protons and then analysing the flashes of light as the remaining particles collided with matter. Occasional 2 Bev flashes, twenty times as strong as the flashes from ordinary neutrons, signalled the mutual destruction of an anti-neutron and a neutron.

This latest proof of the existence of anti-protons and anti-neutrons has reopened the old question of contra-terrene matter and has given rise to a number of fresh speculations about the

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symmetry of the Universe. All the main particles of physics now have an equal and opposite counterpart—both appearing at the moment of creation as a pair.

Why have we no evidence that contra-terrene matter is widespread in the Universe? We know that anti-matter cannot exist on Earth; but could it be common elsewhere? Could whole stars and galaxies be seetee? Professor Frisch believes this is possible and that the light from anti-stars would be no different from light from normal stars. In fact 'normal' may be a highly questionable label, especially if we encountered a race of people with human-type bodies, down to 10 decimal places, whose bodies were composed of contra-terrene matter. They would be 'alien' with a vengeance; but we could not say that we were normal and they were not.

If there are many seetee galaxies we would expect to see a few of them in spectacular collision with our-type galaxies. But no such phenomenon is known. Galaxies have been seen colliding and with the main effects rising from clouds of interstellar gas and dust we would expect to see brilliant astronomical effects before the radiation pressure of the generated light blasted the two apart. From the lack of evidence of seetee matter in the Universe there can only be a small quantity—certainly less than that of normal matter.

Why this is so is not at all clear. If all matter was created in the beginning by a single gigantic explosion and conversion of raw energy into atoms we would expect equal numbers of anti- and normal-stars. The great density of matter at first would enable many of the atoms to react together to reform energy but does not explain why a preponderance of normal atoms were left over to expand and create the Universe.

Similarly, the exponents of continuous creation of matter are having an equally hard job explaining why only normal hydrogen should be created evenly throughout all space.

Now, a Brookhaven physicist, Dr. Goldhaber, has come up with an idea that sounds more like science fiction than pure science. Basing his hypothesis on the original explosion theory, Goldhaber suggests that two universes were formed at the moment of creation, thus preserving the symmetry of nature. Naturally, one universe contains all the missing anti-particles whilst the other is the one we know.

Goldhaber postulates that in the beginning there was a single giant particle containing all the energy and mass of two universes

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—he calls it the universon. This then split into a cosmon and an anti-cosmon of opposite electrical charges and the two were thrust apart by the released energy. It is not clear just where they were pushed apart to, in space, time or other dimension.

The cosmon decayed to form our Universe whilst the anti-cosmon may have decayed in turn to form an anti-universe—somewhere.

Dr. Goldhaber admits there is no known method of checking his hypothesis and there is no evidence in favour of it. But, with the balance of creation in mind, lending its hidden support there is also nothing to disprove the theory.

And so, the place and nature of contra-terrene matter is still unknown, and will probably remain so until astronomers pick out a strange pattern in a stellar spectrum, or witness violent reactions out of proportion when two glaxies collide, or until a high-C ship cruises into a new stellar system, sends down a probe rocket—to see it vanish on first contact in an explosion comparable only to that of an H-bomb.

Only one thing we can be sure of—contra-terrene matter exists.

Kenneth Johns

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GUESS WHO?

Mr. High is a writer better known in contemporary magazines, this being his first appearance in NewWorlds, but his advent herewith is nonetheless welcome, bringing with it yet another fresh approach to a popular theme.

By Philip E. High

Years ago there would have been cheering thousands, batteries of three dimensional telecameras, reporters . . . the President on a platform garlanded with flags, ready to make a welcoming and stirring speech—years ago.

Today, star ships no longer land on Earth. They must return, almost furtively, by a pre-determined route to an artificial satellite circling Pluto. Here there are landing cradles, repair shops, stores, fuel and—the highly trained officers of security.

Galland was first out of the ship. A thin tall man with deep lines each side of his mouth and a tracery of wrinkles about his eyes. He was thirty-four but looked nearer fifty. He nodded briefly to the reception committee but did not speak.

A thin, blank-faced Lieutenant stepped forward and thrust a disrupter against Galland's chest. "Up and open," he said, curtly.

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Galland raised his arms and opened both hands at the same time to show that they were empty.

The Lieutenant nodded briefly. "Medical check to your left, Captain."

Galland walked as directed and two wooden-faced men fell into step behind him. They were Combat Technicians but were known to the Security experts as Psych' Fighters or Reflex Killers. They had been genetically bred and hypno-trained for one purpose—as killing machines; only they were faster than machines. They could draw and fire a weapon with such incredible speed that a man with a weapon drawn and pointed would be dead before he could press the firing stud.

Galland knew this. He knew that the slightest hesitation on his part, the merest hint of abnormality, would bring a splash of energy from one of those weapons that would spatter the charred fragments, of what was left of him, all over the wall.

Leggett was next out of the ship, unshaven as usual, low forehead crinkled worriedly, an uncertain grin about his mouth.

Next came Benon, little and dapper, showing very white teeth in a sallow face.

Lastly, the lanky, red haired Castle who looked as if he had got into the scene by accident.

The door marked "Medical Division" slid shut behind them and examination, stage one, began. There would be blood tests, exploratory incisions, retina and respiration checks. Cardiac charts would be drawn up and compared with previous charts, cellular tests. The man who had first stepped from the ship might be Captain Galland, on the other hand . . . Security never took chances, because once something had stepped out of a Survey Ship that looked like its Captain.

The Scour Squad went to work on the vessel. They fried it, baked it, subjected it to hard radiation and flooded it with corrosive gases for long periods. Instruments checked for radioactives and cosmic energy weapons. Security took no chances that way either, not since eighty-five square miles of Yorkshire had gushed skywards in an eruption that made a hydro-nuclear explosion look like a fire-cracker.

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The crew were passed from Medical to Psych'. The Psych' people threw the book at them. They started with the drugs, Hypnosine, Narcosite, Revopentathol and the rest. They passed from those to psych-mechanics, contortion techniques, shock ejaculators, mentagraphs and lobo-exciters. They didn't find anything but they might have done. There might have been parasitic control or an inscribed directive hooked to a hypno-trigger designed to touch off a course of action at a later date.

Clausen eased his bulk into the director's chair and glanced about him. He had sleepy but astute eyes, almost lost in a heavy face which somehow wasn't fat but muscle.

Bygrove, the Chief Psych, was shuffling his papers, Price, of Med', staring vacantly at nothing and Chief Technician Harris, responsible for the Scour Squad, absently pulling his ear.

"Are we ready, gentlemen?" Clausen didn't wait for an answer. "Bygroves?"

Bygroves cleared his throat. "My department pronounces the crew clear, no reservations."

"Clear," said Price, without waiting to be asked.

"Clear," said Harris.

"So?" Clausen's voice was dry. "Take a look at this will you?" He snapped his fingers briefly at the small projection room behind him. "Okay, Tom, show them what we got."

The lights went out, a screen lit and they were looking at a three dimensional picture. There was a brief glimpse of six planets circling a bright G.7. type sun then a cut to darkness.

"Fifth planet," said Clausen. "Earth type, gravity, decimal two plus, habitable."

They were looking down on the planet from above, the three-dimensional cameras making them feel as if they, themselves, were sliding above the delicate fern-like trees. They saw mountains, rivers, shimmering lakes, two vast oceans, polar ice caps.

"Jackpot!" said Price, softly. "We haven't come across one like this in ten years."

Clausen said: "Yeah." His tone of voice made the others look at him sharply. He snapped his fingers again and the scene cut abruptly. "So far the poet, my friends. In brief, the official standard cameras. As you know, we have secret cameras embedded in the skin of the vessel near the nose. The crew don't know about these. They cut in automatically

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as soon as the motors are switched to surface survey." Again he snapped his fingers.

The same beginnings, tall fern-like trees, a silver river winding away to a far sharp horizon . . .

"Mother of God!" said Price in a startled voice. "Whoever saw a city like that?"

They watched.

"I suppose those things like transparent man-size sea-horses are the dominant life form," said Bygrove. "Biologically they appear to—" He stopped, suddenly. "Say, why didn't all this show up on the standard cameras?" His voice was suddenly fearful.

"Yeah," said Clausen, drily. "Why?"

Bygrove was pale. "Official cameras one thing, secret cameras another, which means the crew—"

Clausen straightened and said: "Precisely. We must face facts, gentlemen. A member, or all the members, of that crew have become, or are controlled by, aliens."

"Which?" said Harris in a thin voice. "If its only one of the crew, which one?"

"Biologically, they're the men they were, all of them," said Price. "We don't know of any life form which can make a biologically accurate copy of another—do we?" He looked worriedly at Clausen.

"Not until now," said Clausen. "Although I don't think that's the explanation."

"Have you an explanation?" asked Bygroves, pointedly.

Clausen said: "No," heavily. "All I know is that the official cameras took a picture, one, or all the men on board, extracted the micro-tapes, erased the original and re-imposed a dummy run-over. All four are qualified survey camera men, any of them could have done the job."

"Which one?" said Harris.

"What do we do?" asked Price. "We can't eliminate the lot in case they're not all aliens."

"Might be a damn sight safer for all concerned if we did," said Harris. "It won't be the first time in history that a few men have been sacrificed to save a race."

Clausen made a gesture of denial. "No," he said, sharply. "Don't think I'm being squeamish about this thing, Harris. Killing them now would be a short-sighted policy. Suppose those things have put a tracer on the ship, suppose they follow up. We won't even know what we're fighting or what measures to take. No, we must find, interrogate and dissect."

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"How?" said Harris with irritating directness.

"Everything—quarantine them together, watch, ask questions, get them rattled."

"Interrogation?" Bygroves raised his eyebrows. "I've had the insides of their heads out—nothing."

"I know, I know." Clausen made it sound soothing. "We'll be watching and they'll be watching each other. The strain will tell, if one of them so closely resembles a human being he'll have the same weaknesses. Maybe he'll crack, maybe the pressure will bring out something that hypno-techniques and probe drugs won't."

"Could be." Bygroves sounded doubtful.

"Suppose they're all aliens," suggested Harris. "They won't go back and watch each other then."

"They'll slip," said Clausen. "They can't help it. As I said before they're so perfectly human they suffer the same weaknesses. A human can take just so much. We know how much. If, on the other hand, they are controlled by aliens then the vehicle will crack."

"You're inferring some sort of telepathic control?" asked Bygroves.

"Why not? Its happened before, I remember."

Price nodded. "Eight years ago, when Bronson was Chief, kids' stuff compared to this."

Clausen lit a cigar with some care. "I suggest we begin at once. Shall we start with Captain Galland?"

Galland stood to attention yet still appeared to be stooping slightly.

"Yes, gentlemen?" He looked from one to the other nervously, conscious of a reflex killer standing behind him.

Clausen said: "You, or other members of crew, are aliens. Is it you?"

Galland felt sweat gather in little beads above his eyebrows. The voice had been so friendly and conversational that he found himself stuttering. "Good God—no—you made the checks."

"If you are, you don't know it," said Bygroves. "That means you might be. I should think about that."

"One of the others might be," said Price. "They won't know either."

"Why did you fake the tapes?" said Clausen. "Someone dubbed the tapes of the survey cameras. Why did you do it, Galland?"

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"I didn't. I never touched the damn tapes." He shouted, suddenly; "What the hell are you picking on me for?"

"It might be you," said Clausen reasonably. "If it isn't you its one, or all, of the others. When you get back you'll have to watch them."

"It was a rotten dubbing job," said Harris. "You could have done it much better."

"I didn't touch the tapes."

"When we had the Altair case," said Clausen, "we put the Captain in a sonic cubicle. The face lost shape and it wasn't the Captain anymore. It's terrifyingly painful and you can't go mad. You pray for madness but it doesn't come. You wouldn't like that to happen to you would you, Captain? Especially if you're not alien—."

"Leggett next, I think," said Clausen when the Captain had been escorted from the room. "We'll give the lot the same treatment, then we'll watch."

"Any impetus?" enquired Price.

"Oh yes, we'll let them know they're being watched. We'll talk to them periodically, a reminder of their position."

"I don't like it," said Bygroves. "White mice in a cage, periodically prodded, but they're not white mice, they're men."

Harris scowled at him. "Care to prove it?"

Bygroves flushed slightly but ignored the remark. "They can assess the implications and know their lives are hanging on a thread. They'll hate each other, they'll hate us and it could drive them mad. It might drive them mad before we find out what we want to know."

"Can you suggest anything better?" asked Clausen.

Bygroves shrugged angrily. "No, it's just the principle—." He relapsed into moody silence.

"I don't like it either," said Price. "Further, I'm scared. There's something about this business I don't like. I've got a strange feeling we could clear all this up by changing our approach. Every life form we meet we treat as an enemy, slap down first and make signs of peace afterwards. I've a strong feeling that we can go a lot further, more safely, if we gave other life forms a chance to prove themselves first."

"The Union will love that one," said Harris, sarcastically. "They'll throw it, and you, straight on the junk pile."

"All right, but I think I'm right. I think that alien is trying to tell us something mentally. I think we could save our-

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selves, and humanity, an awful lot of trouble if we took some notice."

"I agree. I feel it too." Bygroves' voice was determined.

"We all feel it." Clausen looked from one to the other frowning. "The point is, it's not our business. You know the regulations as well as I do. Now let's get on with the business in hand."

Price rose. "As you wish, go by the book. It's your head as well as ours."

The four men were confined to a large comfortable room. There was every convenience and no privacy, every luxury and no pleasures. They knew they were being watched and they watched each other.

At unpredictable periods the speaker boomed at them. "Which of you are aliens. It might be the one beside you—think. Think back, who did you see touching the cameras?"

The voice shouting. "Wake up there, wake up. Why did you dub the tapes, declare yourself." And then softly. "You could go back to your home world, we have nothing against *you*. We just wish to protect ourselves, you could save yourself all this."

The alarm buzzer jerked Price from sleep two Earth periods later. He did not stop to thrust the wall bed back into its cubicle and reached the observation room still struggling into his clothes. "What's the trouble?"

Bygroves, white faced, pointed to the screen.

Price looked and felt himself go cold. Benon lay sprawled on the floor and Captain Galland was still bending over him in the attitude of one eager to continue the attack.

"It all happened so suddenly." Bygroves' voice was harsh with tension. "He just leapt without warning. Benon was talking—about women, as usual—Galland chopped him on the side of the neck with the edge of his hand. Benon was down before I could throw the immobiliser switch."

Price was already struggling into a protective suit. He hoped it would protect him. It was supposed to stop anything but he was doubtful. No one knew just what they were fighting.

Clausen joined them as Price was completing his examination.

"Is he dead?"

"Very dead," said Price straightening. He looked at the other prisoners, still rigid from the immobiliser and an old

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jingle came into his mind. Ten little nigger boys—four little prisoners. He had the frightened feeling that, in some way, he was being horribly prophetic. Benon was only the first.

"Better give Galland a release shot and have him in," said Clausen. "Check his psycho-pattern first, Bygroves, make sure there's no insanity ripples on the psycho-graph."

Captain Galland was quite sane. "I killed him because he was the alien," he said simply. "I remembered he spent a lot of time by the cameras and I watched him. While he was talking I saw him change. His eyes altered and his face—."

"It didn't occur to you to press the alarm buzzer?"

Galland said stiffly: "I should never have made it. He saw I had him spotted. There was something pretty deadly there, something too powerful and alien to describe. He could have killed me and said I was the alien."

"Or you could have killed him, as you did, and said he was," said Clausen softly.

Galland's mouth fell slowly open. "You don't think—"

"It is of no consequence what I think. The point is, it could be true. Did you see Benon's face change, Bygroves?"

"No." Bygroves shook his head. "I couldn't if it had. The man had his back to the vision screen when Galland killed him."

Four hours later an attendant medic pressed the immobiliser switch again. Leggett was doing his best to strangle Galland.

Leggett was sane too. "He killed Benon because Benon had him spotted. He knew I'd spotted him too. Something happened to him, some kind of force seemed to be flowing out at me. I knew I had to get him before he got me."

"Or before he spotted you and notified us," suggested Bygroves in a dry voice.

Leggett said, wearily: "I look dumb but I'm not. I know I'm right but can't prove it. You don't know either way, do you?"

"Get him out of here before I strangle him myself," said Harris, tightly.

When he had gone, Harris said: "We're getting nowhere, fast. What do we do when they've killed each other off? Sit around watching an empty room?"

Clausen smiled. "Ever heard of diversionary attacks?"

Bygroves looked at him sharply. "You're working on an angle, as usual. One day something will outsmart you."

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Clausen stretched and rubbed his hand across his chin wearily. "One day something will outsmart the whole Union. We'll stick our noses into a system which will recognise us for what we are—predatory upstarts, and that will be *it*."

The crisis occurred four periods later. Alarm buzzers sounded all over the satellite and red lights pin-pointed the danger area.

The emergency squad was already standing by when Clausen arrived but it was not an attack, at least, not from outside.

There was an unrecognisable cinder in the middle of store-room seven, charred fragments spattered the walls and there was the stench of burned and disrupted flesh. A blank-faced reflex killer was calmly cleaning and reassembling his disruptor.

"What happened?" Clausen's voice was a bark.

The man did not turn his attention from his weapon. "I was doing routine rounds, Sir, when I came in there was a thing in here. It wasn't a man. I don't know what it was. I shot it."

Clausen swore under his breath. Damn trigger-happy moron, now they'd never know what it was. His face paled suddenly and he flicked the communicator switch. "Attention, attention all section officers. All departments check your personnel, on, or off duty. Report in order to my office in ten minutes." He snapped down the switch and jerked his head at the killer. "You'd better come with me."

The reports were prompt, concise and precisely what Clausen had feared. R.T. Comber, maintenance, 2nd Class, could not be found. He had gone to store-room seven for a supply of air pump gaskets and had not returned.

Clausen thought of the charred cinder on the floor and the mess on the walls. "What's your name?" he barked.

"Pean, Sir. Walter H. Combat Technician, First Class."

Clausen leaned forward. "Pean, you've just killed a man. You blasted him to pieces as he went about his normal duties, why?"

"I, Sir?" The blank face did not change. "There was no man, Sir, there was a thing. I shot it, I told you."

Clausen's heavy knuckles whitened as he clenched his hands but his voice was calm. "You are mistaken, Pean, the thing you saw was a member of the maintenance staff. You made a mistake, some trick of the light, perhaps."

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"I saw it clearly, Sir. It looked like a kind of sea horse, semi-transparent, so I shot it. If it had been a man dressed up I should have done the same. I can't help it, it's my conditioning. You understand, Sir, when I see a thing that's not human, I kill it, I can't help it."

"All right, all right." Clausen dismissed him irritably. The psychs were getting too clever. When you got a thinking weapon that didn't have to think before it acted there was a paradox somewhere. The fastest killing machine ever created and you couldn't control it. It looked like man had outsmarted himself.

Bygroves came in. He looked haggard and his hands trembled. "It's loose in the satellite now, isn't it." It was a statement, not a question.

Clausen nodded without speaking.

"Any ideas?" Bygroves' fingers drummed nervously on the edge of the desk.

"Plenty." Clausen heaved his bulk out of the swivel chair. "It tipped its hand—if it has hands. It carried this elimination technique just one degree too far. The creatures are in advance of us technically but I think I have their measure."

Bygroves sank into the chair Clausen had just vacated, some colour had returned to his face and there was hope in his eyes. "How long before?"

"I hope to have enough of it left for the labs to work on inside five hours." Clausen sat on the edge of the desk. "We fell down on ship clearance. The thing walked out of the ship behind one of the crew—Galland, Leggett, any one of them. It was already semi-transparent, a two-cent device could have completed the job and reduced it to complete invisibility."

"What about the detectors?" Bygroves fumbled nervously for a cigarette.

"That's where we fell down. They've always worked, haven't been revised for years. A thing that could build a city like that must have laughed its head off. It could bend light round itself, bending the detector rays without breaking the circuits and ringing the alarms must have been kid's stuff. It walked off the ship right in front of us like follow-my-leader."

"I still don't see how it began." Bygroves put the cigarette in his mouth and forgot to light it.

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"These things have some sort of hypnotic technique," said Clausen. "The crew of the survey ship saw what those things wanted them to see, a stage ten planet with excellent colonisation possibilities. They landed and the thing got on board. Then it either dubbed the camera tapes itself or influenced one of the crew to do it."

"Then why should they try and kill each other?"

"It's loose in the ship, isn't it? It imposed an hypnotic picture on Galland's mind and when Galland looked at Benor he saw an alien, simple. Pean, the reflex killer, went down to store-room seven and saw Comber. The alien was around, it got into Pean's mind and, instead of seeing Comber, he, too, saw an alien. Clever, isn't it? We wipe each other out while the alien stooges around beaming directives from an arm-chair."

"We could have spared ourselves all this and saved some lives. We do everything the hard way." Bygroves finally lit the cigarette.

"Do you think there'd be a Union if we'd gone out to the stars making peace signs? You hit first, then dictate peace terms as the boss, it's the only way if you want to survive."

"How do you know when you've never tried?"

"Oh, for God's sake!" Clausen shrugged irritably. "It works, doesn't it? We've got ourselves an Empire, that's proof enough in hard fact."

"If you say so." Bygroves sounded weary. "What do you intend to do about the present situation?"

Clausen lit a cigar. "Years ago we ran into a virulent infectious fungus. It was stopped by letting the air out of the satellite. There is a special button I can press for just such an emergency, self-sealing bulkheads won't function and compensators quit. The men have enough emergency drill, they'll rush for survival suits. Our alien friend is too big to wear one of ours, too big to have carried one of its own out of the survey ship. When the air goes out of the satellite, this thing will be caught with its pants down."

Bygroves nodded. "Smart. All this interrogation business was a blind then?"

"Yes."

Bygroves blew a smoke ring. "You're smart, aren't you? Perhaps the smartest man Security's ever had out here, the smartest and the most ruthless. It could have worked."

"What do you mean?" Clausen frowned at him.

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"If this creature is tops on hypno-techniques, it can get into your mind and read it, know what you're going to do in advance."

"I've got to take a chance on that."

"I'm afraid that's one thing you're not going to do." Suddenly there was a thick barrelled splash gun in Bygroves' hand. "You were right, Clausen, so damn right in everything. You're too smart for your own good. I shall tell the others I saw you change, that you were the alien so I shot you. It's as simple as that. Without you an understanding may be reached."

"But you're not the alien, you can't be." Clausen's voice was hoarse.

"Can't I? This hypnotic business is very, very encompassing."

With dull eyes Clausen saw Bygroves' finger depress the firing stud.

Philip E. Hind

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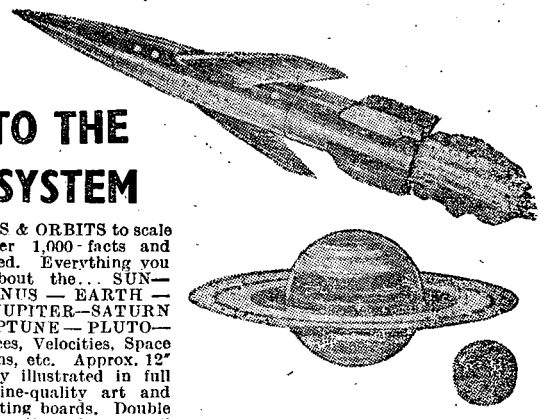

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THE LIGHTS

During recent years we have published a number of intriguing concepts regarding the impact of spaceflight upon the human being—Alan Guthrie's two stories, "Samson" and "No Space For Me"-published last year assumed that it would be physically impossible for Man to venture into space. James White extrapolates the theme herewith in an even more fascinating manner.

OUTSIDE THE WINDOWS

By James White

Illustrated by EDDIE

Seen through the direct vision port the receding planet Mars was a completely uninteresting object—a pink circle roughly the size of a golf ball held at arm's length with blurred, uneven edges, the brighter stars in the background showing as faint smudges of grey on the surrounding blackness. *The Glory of Space!* Captain Miller thought sardonically, and made a face.

To show their faith in the *Starfire's* Captain the powers-that-be had allowed her to have one small view-port—two square feet of transparent plastic—in her private cabin. But their faith must be something less than complete, however, because the material was about as transparent as cut glass. Carefully, so as not to send her hammock into oscillation, the Captain turned her back upon Mars, stretched and tried to go to sleep.

But it was not to be. The intercom beside her burst suddenly into a furious babble of speech:

"He's breaking my engine! He's *breaking* it! Stop him, he's breaking my—"

"I'm *not* breaking it—"

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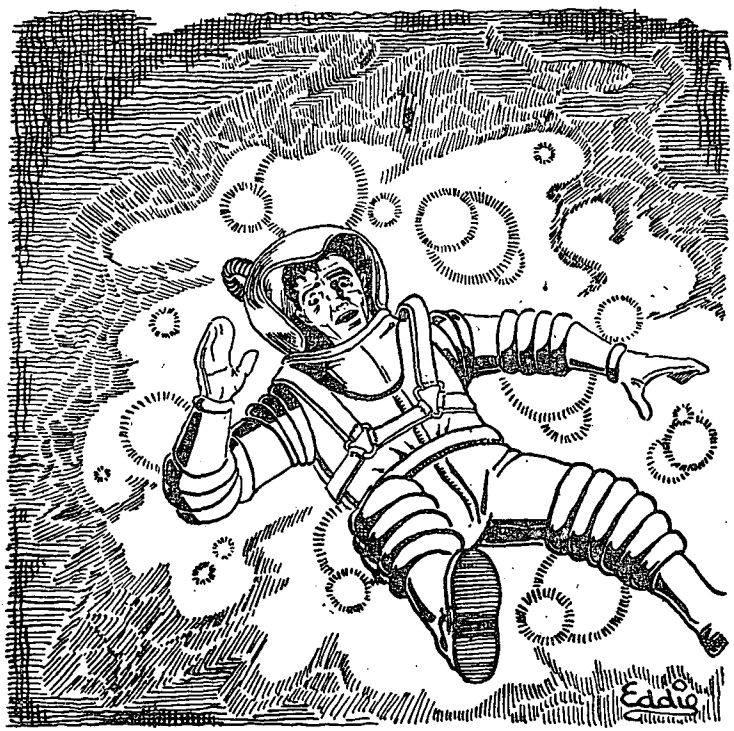

"He is! He is! He's smashing the whole—"

"Shut up! I won't hurt your silly old engine. Besides it's not really yours . . ."

The Captain reached out and flipped over the "Transmit" switch. With just the proper amount of reproof in her voice, she said, "Now boys, one at a time. Manners, remember, and discipline." She paused, then; "You first, Jimmy."

It seemed that Chief Drive Engineer James Hollingsworth, Ph.D. etc., etc., was having a row with the equally well-degreed Christopher Barnsley over the engine. Captain Miller knew that engine of old and had been expecting it to undergo its periodic metamorphosis at the hands of her crew at any time now. The outrage from the more conservative-minded individuals was also expected. But she was a good enough psycho-

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logist—an exceptionally good psychologist or she would not be Captain of a spaceship—to know that there was no real danger as yet, and so began the verbal pouring on of oil that had become almost automatic with her. She ended by telling Chris and Jimmy that she would be with them shortly. The knowledge that they had caused her to cut her sleeping period short for them should have a chastening effect, though the truth was she could not sleep anyway.

As Captain Miller struggled into her uniform, the blurred, pink orb of Mars stared in at her. She found herself staring back, and thinking—with a peculiar mixture of irritation and amusement—of their recent landing there.

The secrecy and almost mystic ritual surrounding the touching down of a Star Line spaceship had become a joke on the three worlds and five satellites served by that Company—one of those jokes which are funny, but which leave a bad taste in the mouth and a doubt in the mind as to who exactly the joke is on. For one thing, the ship's personnel never left the vessel anywhere but at home base—and then only in screened cars. For another, the passengers were loaded and disembarked while under sedation by medical orderlies, with Company guards present to see that they did not let their curiosity get the better of them by ducking into restricted sections of the ship. Because of the necessity of talking to Ground Control, arranging for food, fuel and the like, the only fact generally known about Star Line ships was that they possessed women Captains—voices could not be completely disguised even over the RT.

It was this fact which had caused the rumours to grow, and given birth to three songs, scores of allegedly humourous verses and probably hundreds of stories all of an unprintable nature. This was the cause of the Captain's mixture of emotions. It was laughable, if it was not for the fact that sometimes she felt mad enough to spit.

When she thought of Traffic Control on Mars with their sly, "Did you have a nice trip, Captain?" she felt like opening up on them with a couple of home truths about themselves. But she would not do any such thing, no matter how much she felt like it. Not for some time, anyway.

Star Lines had a trade secret, and if it was to survive and grow against the competition of the larger Government subsidised Companies, it was natural for this small independent outfit to keep that secret until it was at least as strong as its

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competitors. After that their methods of training and ship operation would be published, Captain Miller and her sister Captains would become famous, and a lot of hyper-curious and over-imaginative would-be poets would look awful silly.

Miller smoothed the wrinkles from her one-piece white coverall, checked that her hair was clipped down securely at the back of her neck, then kicked herself into the corridor outside. The sight of its green and white striped floor, walls and ceiling acted as always, as a sort of Pavlovian bell to her mind.

The conquest of space became a fact when, while astronauts all over the world were still trying vainly to produce a manned satellite vehicle, the superbly efficient and economical Spencer-Holst Drive was discovered by two physicists who were not even interested in astronomy. With it the inner planets were only weeks away, the Moon merely a matter of hours. Oh yes, Captain Miller thought bitterly, the conquest was certain —if it had not been for the flaw in the mental equipment of the would-be conquerors.

Quite simply, men could not stand Space.

But spaceflight had become a matter of national prestige as well as of population pressure. The colonisation of the inner planets became a crusade which was fought with the determination and heroism which had characterised the wars of recent history. And it became expensive not because of the power needed to send a ship from planet to planet but because of the fantastic lengths some Governments went to protect or cushion their crews against the shock of Space.

Green and white zebra stripes, Miller thought; corridor to be entered only by the Captain. A black and white diamond pattern on a corridor, storage compartment or dormitory meant that ground staff—medical orderlies, maintenance men and cargo handlers together with their respective guards—only were allowed there. A red and white check *motif* was used throughout the crew's quarters, and for the duration of the voyage they stayed happily within their three-dimensional draughts board with no inclination whatever to leave it. The conditioning which made them behave thus was most subtle; a crew-man was not verbally forbidden to go to the green-white or black-white sections. But if Captain Miller was to ask one of her officers to come to her cabin or to meet her outside the passenger dormitory, that man would find some weird and wonderful excuses for not going, and if forced he would become a very sick man rather than go.

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The crew were conditioned in other ways, too, of course, the exact nature of that conditioning being the trade secret.

Only Captain Miller could go anywhere she pleased on the ship. She alone was not conditioned. At least, she was fairly certain that she was not. You never could tell.

She passed from stripes into the black and white diamonds of the passenger section, then paused. Soft bumping and scraping noises were coming from the dormitory where Billy was laying out the food containers preparatory to administering the shots which would wake the passengers up for their next meal. Billy, as Chief Steward, Cook and Medical Officer, was the only member of the crew allowed in the passenger section, and of course he was never present when its occupants were conscious. His job was to set up the food and leave before his charges woke up, then return to clear away again when the sedatives contained in the food had done their work. He also saw to it that body functions continued in a healthy manner during these awake periods by the administration of other, cruder types of drugs. He was a Doctor, of course, and a good one, but Miller prayed continually that nobody on board would take seriously ill. The sense of medical responsibility tended to become lost on a ship like the *Starfire*.

There was really no reason for her to check the passengers again. It would only make Billy flustered and hold him back, and she would not do that merely to satisfy the vague uneasiness she had felt since the discovery that Danny had been assigned to her ship. She had to call him Danny and treat him like any of the others despite the relationship existing between them on Earth, but it was a strain. Miller shrugged angrily and continued on her way.

When they got back, Miller vowed to herself, somebody was going to suffer for that little mix-up. Danny normally was Second Officer of *Starflame,* but some idotic personnel man had got his flames and fires confused so that he had been sent aboard the sister ship *Starfire* by mistake. If Captain Miller slipped off the psychological tight-rope which that error had caused her to walk, it could quite easily prove fatal.

It was considered extremely unwise for a Captain to have even a distant relative in her crew, and to have had a prior emotional attachment to a crew-member was simply asking for it. If she had only discovered the mistake early enough to rectify it . . .

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There was a peculiar and highly-artificial balance between the Captain and crew of the *Starfire*. The men had been so conditioned that they naturally gave her all their trust, loyalty, and a love that amounted almost to worship. On her side she had to love them in return, but with the utmost impartiality, and guide them and the ship to safety by seeing to it that that balance was preserved. But the slightest sign of favouritism would have been fatal to that delicate structure, and she suspected that she was leaning over backwards in not showing favourites where Danny was concerned. That could be dangerous, too.

Captain Miller swore helplessly under her breath. They were babies, just babies, despite their degrees and vast specialised knowledge. She could not feel annoyed with them for long. Besides, if they had not been as little children they would not have been here in the first place.

A bulkhead door with a lock on it lead to the Crew and Control section of the ship. She fastened it behind her, then kicked out towards the open door of The Mess which was about fifteen yards along the corridor. At once she saw that one of the crew was lying in wait for her. She sighed.

A knee, shoulder and the top of a head showed around the side of a tool locker. Had a little more been visible Miller would have known who the man was. However, as he was trying to hide she would play along by pretending not to see him—she would find out who it was soon enough.

As she drifted gently past the locker a long familiar voice said "Boo!" loudly. Simultaneously a heavy body collided with hers and a pair of massive arms wrapped themselves around her waist. Miller's perfectly-judged dive along the corridor ended in a chaos of arms and legs against a section of wall-netting, but luckily only her dignity was bruised. She steadied herself with the aid of the net and used the knuckles of her other hand to rap sharply on the ambusher's forehead.

"Danny! Behave yourself!"

There must have been more irritation in her tone than she had meant to show. The wide, exuberant grin on Danny's face was abruptly wiped away and for a moment she thought that he would burst into tears. She said hastily, "There, there. I'm not angry at you, Danny. It's just . . . Well, you startled me."

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Danny's expression became suddenly contrite. "I'm awful sorry," he mumbled, then half fearfully, "I . . . I thought maybe you didn't like me anymore . . ."

Miller looked into those desperately pleading eyes, then away quickly. *This wasn't fair,* she thought wildly. The strong, mature, well-integrated person that she knew so well on Earth, and on whom she had depended so much, should not be looking at her like this. It was tearing her apart. She said roughly, "Of course I like you, Danny. I love all of you equally. You know that. But now I have to go to the Mess. Are you coming?"

Danny nodded vigorously and chortled, "Yes. Oh, yes. Chris and Jimmy say they're gonna fight for who gets the engine."

That's what they think, Miller thought grimly as she resumed her interrupted journey. She had not realised that the situation had become as serious as that.

Technically, the place where the four-man crew of the ship spent their off-duty periods was called the Wardroom, but to the personnel of the *Starfire* it was referred to simply as The Mess. And not without reason, Miller thought as she halted herself at the entrance and surveyed the interior once again. *Men,* she reflected for at least the hundredth time, *will be boys!*

The ceiling and walls were covered by a complicated layout of narrow guage railway track. A model railway enthusiast afflicted with surrealistic nightmares might have dreamed up something like this, Miller thought, with its signal boxes, stations and bridges sticking out at all sorts of unlikely angles, and with sections of track actually looping the loop in some places to avoid outgrowths of the ship's plumbing. But the wildly three-dimensional nature of the layout was due simply to its having to operate in the absence of gravity, during the weeks of free fall between the sustained high-acceleration periods at the beginning and end of the voyage. Chris, the *Starfire's* Communications man, was kept constantly busy re-magnetising the tiny metal sleepers so that the rolling stock would stick to the track and not go drifting off into the middle of the room.

But at the moment operations were at a standstill because the reason for being of the whole thing, the locomotive with the long-running clockwork motor, was being hugged protectively to Chris's chest. The rolling stock stood neglected

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in the sidings while a bitter argument raged between Chris and the Engineer Officer, Jimmy.

Miller took a deep breath, then said with mock severity, "What's all this about breaking our engine? Speak up, now."

"I wasn't going to break it," Jimmy said with a withering look at Chris. "I just wanted to take out the motor for a while . . ." He went on to explain the idea he had for fixing a propellor to the driving shaft and building a model aeroplane around it He was fed up with Chris and the railway and wanted something different.

Chris was protesting loudly long before he had finished talking, and Danny was butting in with arguments about the technical difficulties of making a model aeroplane fly realistically in weightless conditions. Miller found her head beginning to spin: her degrees were in applied psychology, not advanced aerodynamics. But one fact emerged quite plainly, Danny was about to side with Jimmy. In those circumstances there was only one thing she could do.

"I'd like to see Jimmy make an aeroplane," she said in cajoling tones, looking at Chris. "Wouldn't you? And if we don't like it when it's finished then he can put the motor back again. You'll see, you'll have lots of fun with an aeroplane." Her eyes sought confirmation of this from the others, trusting to their childish imaginations to come up with something which would divert Chris from his beloved trains. She was not to be disappointed.

"Sure," Danny burst out excitedly. "We could play Air Raid." He looked quickly at the Communications Officer. "You've got pieces of plastic insulation we could use as pea-shooters. The man that hits it the most as it passes over—"

"We could darken the room," Jimmy broke in, "and everybody could have a flash-lamp as well as a pea-shooter. Searchlights!"

Chris began to look interested.

Captain Miller knew that her Communications Officer would not have gone against her wishes once she had made them clear, but she did not want Chris sulking for the rest of the trip. His voice was never heard over the ship's sender, of course, but he was necessary in case the *Starfire's* electronic gear went wrong.

But Chris was happy now. Miller left them all talking excitedly together and unobtrusively moved into the Control-room which adjoined The Mess where, theoretically, Danny

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was supposed to be standing watch. She would have to remind him gently of that, and he would probably say that he had grown bored and had decided to go in and play with the others. Miller smiled.

For roughly two in every ten hours she checked—without understanding—the workings of her command. She never expected anything to go wrong, naturally, especially during the three weeks of free fall conditions when most of the ship's automatic devices were shut down. But if something did go wrong then she could interrupt the play of one of her highly qualified "boys" and make him play Spaceman until it was fixed.

It was a crazy way to operate a spaceship, Miller knew, but not nearly as crazy as some of the methods currently in use. Giant, unwieldy, inefficient ships which carried two—sometimes three—separate sets of operating personnel, and frequently went through all of them on a round trip. Then there were the more imaginative ones who designed their spaceships to resemble the interior of an ocean-going atomic submarine, complete with moving pictures of fish swimming outside its "Port-holes." But that required a one-G acceleration at all times during the voyage, which was a ruinously wasteful and expensive level of operation for the Spencer-Holst Drive. But even then accidents occurred. Somebody was sure to look through the wrong porthole at the wrong time . . .

It had been Captain Miller's grandfather who had first brought back the proof that Space was not for Man—and incidentally, who was primarily responsible as President of Star Lines for later proving himself a liar. History had it that Dr. Ernest J. Miller was awarded a place in the first S-H powered space vessel because of his contributions to the field of space medicine, but the truth was that he had made such a nuisance of himself that they let him go simply to get him out of their hair. He had infested the crew's hair during the trip in various ways until the ship actually sat down on the Moon. It was then that Dr. Ernest J. Miller became an historic figure. Of course, the official accounts called it scientific caution, but with all due respect to her grandfather, Captain Miller knew that he had been scared stiff of leaving that ship.

The ship had made the approach and landing on instruments, and because of a fault in the two-ply glass of the direct

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vision port—faulty insulation had caused it to frost over, luckily—the crew were anxious to get their first look outside the ship. Its Captain and another crew-man had suited up and, watched enviously by the other two officers—but not Dr. Miller—they had jumped the short distance to the Lunar surface. They had looked all around them, talking excitedly into their suit radios, then they had looked up.

The talking stopped. With arms akimbo and heads thrown back they remained motionless. They stayed that way while another officer became worried and went down to see what had happened to them. He also became a motionless, up-staring statue before he could report anything helpful to the two still in the ship. It was two hours before the remaining ship's officer ventured down to them, watched by a jittery Dr. Miller.

The Doctor had formulated an ingenious and utterly fallacious theory having to do with the effects of Lunar gravity on the semi-circular canals of the ear and the sense of balance, so that the officer had the strictest possible instructions for rescuing his friends. On no account was he to look up or move his head quickly in any direction. Acting on these instructions he succeeded in returning his three companions to the ship. But while in the airlock on his last trip, curiosity got the better of him.

He had remained lucid for over half an hour, sufficient time for him to tell the Doctor how to put the ship on long-range automatic control—so that Earth Base could bring it home—and for painting over the direct vision port in case the frosting melted away.

Men could not take Space—or rather, they could not look at it and stay sane. In space the Universe could be viewed in 3-D as it were; the distance between the heavenly bodies and the awful masses of nothing at all were placed in their true perspective. To say that a man felt insignificant at the sight was a pitiful understatement, like saying that he acquired a severe inferiority complex. But this was not the worst that happened to the man who looked into Space.

Psychologists likened it to the experience of being torn prematurely from the mother's womb, but with all the adult faculties and sensitivity present during the trauma instead of the undeveloped senses of an infant. Certainly the space-man's conscious mind recognised the fact that he was only leaving this womb—the Earth—temporarily, but his sub-con-

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scious most decidedly would not. Under the double shock of "space-gazing"—which among other things paralysed the time-sense—and the "space-birth trauma," the male human mind collapsed.

The male mind . . .

A young, mentally healthy and mature woman was not bothered much by the sight of Space because, after the nature of her kind she possessed a very practical, down-to-Earth mind. Absence from that same Earth did not bother her either because—to over-simplify an extremely complicated subject—she was conscious of carrying her world inside her. This was the discovery which the Star Line psychologists had made, and it was only a step to the present highly successful crew-system used in their ships.

For the duration of the two-way trip the *Starfire's* crew were hypnotically conditioned into believing that Captain Miller was their mother. The conditioning—which lasted *only* during the voyage—also gave them an emotional age of about four years, though their technical skills remained unimpaired. It also, in a most subtle way, caused them to think that they were not really in a spaceship but in some complicated mock-up in which they were training to become spacemen when they grew up. Four was a very credulous age. They only pretended for the Captain's sake that they were in Space—she was their mother after all and they liked to please her. In this way the "space-gazing" danger was avoided, and Mother Earth was replaced by the symbol of a loving Captain. The system so far had worked perfectly.

Miller, of course, was the only normal person apart from the doped-up passengers in the ship, or she was supposed to be. Sometimes she wondered if there had not been a little reciprocal conditioning used on her, the way she felt about her crew at times, or was she simply suffering from an over-developed maternal instinct?

Her thoughts were interrupted by Danny entering the Control-room in search of a screwdriver suitable for dismantling toy locomotives. As he left again the intercom buzzer sounded on the Captain's desk indicating a call from the passenger section.

"Yes, Billy?" she said, switching to sound and vision.

"Th-there's a man who won't go to sleep," Billy stammered, his eyes wide with excitement. "And . . . and he's trying to get out!" The combination cook, steward and medic swal-

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lowed, then added nervously, "He heard me outside and tried to talk to me."

"Did you answer him?"

Billy shook his head hurriedly.

"That's a good boy," Miller said, then: "You can come back to clear the dinner things in about an hour. He'll be asleep by that time." She smiled reassuringly and switched to the screen showing the interior of the passenger compartment, her eyes sweeping it for an empty hammock.

Number 15, that was a man called Gordon. And he had not eaten his dinner or he would not have been up and about.

"Mr. Gordon!" she said sharply. "Please return to your hammock and eat. You are endangering the efficient operation of this ship. Behave yourself!"

Gordon had his feet planted against the door of the passenger dorm and was working at the handle. He gave a start, then looking in the general direction of the concealed 'speaker and vision pick-up, he said, "I just wanted to see a bit more of the ship. No harm in that, is there?"

He was a big, dark man, Miller saw, who could have been a miner or an engineer if it had not been for that crafty look in his eyes. She guessed that he was in the business end of the Colony—the funny business end. Miller exhaled heavily through her nose. She was becoming angry, which was unusual for her, and she felt angry at herself for being angry. This trip was getting her down, Danny was getting her down . . .

"You are forbidden to leave the dormitory during the voyage," she said angrily. "You know that, it is one of our conditions of carriage. Kindly return to your hammock . . "

"Look," said Gordon, a wheedling note creeping into his voice, "I know there's something in the food which puts us under, that's why I didn't eat anything this time. I'm curious, you see. Why not let me see round the ship, or even part of it, and meet you. I wouldn't cause any trouble—"

"The regulations are for your protection, not mine. I'm sorry, Mr. Gordon."

"I'd keep quiet about it, Captain. Honest." Gordon paused, then went on quickly, "I'm not a rich man, but I could pay to have my curiosity satisfied."

"Please return to your place."

Miller often had trouble with passengers asking questions on these trips, but this was the first time one had tried to bribe her. Seeing that Gordon was about to renew his argu-

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ments, she angrily broke contact with him. His image was still fading from her view-screen as she pressed the button on her desk which released Morpheum into the passenger dorm.

She would wait five minutes for the sleeping gas to do its work, then go down and tuck the recalcitrant Mr. Gordon into his hammock. He would be hungry at the next waking period, of course, but it jolly well served him right.

Eight minutes later she was at the entrance to the passenger dormitory. The door was open and Gordon was missing.

Her first concern was for her boys. Gordon loose among the crew could cause serious harm—she might have to re-condition some of them, and that was a dangerous business with the limited facilities aboard ship. A normal adult tangling with a bunch of emotional four-year-olds . . . She pushed the thought hastily out of her mind while she fumbled for the nose filter which would protect her against any residual Morpheum seeping through the entrance, then she stopped abruptly.

Gordon, she realised now, must have had a similar nose filter. But in common with all the other passengers he had been searched carefully before embarking and again on the ship. That meant the filter had been placed in the dormitory beforehand for his use, which in turn meant that Mr. Gordon had not merely been personally curious but was engaged on a piece of well-planned espionage.

But all that was a job for the Star Line security section when she got back. Now she had to find him before he ran into one of the crew. Which way had he gone?

She felt rather than heard a slight shock from astern. It could have been made by shoes striking the metal plating of the ship. The crew always wore soft sandals. Miller headed in the direction of the sound.

As Miller moved into the red and white checks of the crew territory she was thinking that perhaps she could do a little work on Gordon's mind to keep him from blabbing about anything he might have found out in his travels. She thought she could do that without damaging him. She would have to find him first, and gain his confidence . . .

Suddenly out of the corner of her eye she saw Danny following her. As if she hadn't troubles enough already! She pretended not to see him, then sealed the next bulkhead door she passed behind her. That would delay Danny for a

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few minutes anyway. If she could only get to Gordon quickly enough before Danny arrived to complicate things . . .

Ten yards further on, she found Billy.

He was clinging to the wall-net with one hand while holding the side of his face with the other. He said tearfully, "He hit me. I—I tried to stop him, because you told us that the lights outside the windows makes the passengers sick. B-but he hit me." The account ended on a wailing note.

"Where did he go, Billy?"

Billy pointed to a branching corridor behind him. Miller mentally ran over the plan of the ship, then dived hurriedly into it. The galley and certain sealed portions of the Drive were there, also one of the ship's life-capsule bays.

She actually saw Gordon as he slammed the air-tight seal of the launching bay behind him. It took a few minutes then for Miller to reach the spot herself and remove the opaque shield covering the seal's inspection window. When she did so, Gordon was already slapping paint onto the transparent canopy of the life-capsule. In a few minutes he would be gone.

She knew what had been planned now. This Gordon character was supposed to find out all he could about the ship, then escape in a life-capsule. Each capsule mounted a small reaction motor and fuel sufficient to take it a safe distance away from an exploding or otherwise distressed mother ship, together with a two-way radio. He would launch the capsule, check the *Starfire's* Earth-wards velocity which he shared by use of his rocket motor, then await pick-up by the ship which was undoubtedly hanging on *Starfire's* tail just beyond detection range. After that, in due course, the Star Line Company would again become a minnow among sharks.

But she could stop him yet. If only he did not know too much about spaceships.

"Mr. Gordon," she said crisply, switching on the mike to the capsule compartment. She also activated sound and vision recorders all over the ship, just in case there was an accident and subsequent investigation by the authorities—she had to play safe both for the Company and herself. "Mr. Gordon," she repeated, "Cease all movement at once. You are in great danger. The mechanism of that capsule is faulty. . . ."

While she was speaking Miller kept her face at the inspection window, but her hands were wrestling with the stiff

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manual control of the air-tight door. Gordon had cut out the servo-motor which normally operated it, but if she could open it manually then the outer seal of the bay would not open and the capsule could not leave the ship. But the fact of her trying to open the inner seal would set off all sorts of warning indicators inside. If she could only keep Gordon's attention . . .

Gordon looked up startled at the window which he had thought was solid metal, and at the voice issuing from the speaker above it.

"Well, well," he said mockingly. "It was nice to have seen you, Captain . . ."

Suddenly his eyes slewed sideways and his face went white. He had seen the warning lights blinking on the nearby bulkhead and come to his own conclusions. "Oh, no you don't," he said thickly, and called Miller several extremely dirty names. He began wriggling frantically into the life-capsule.

Miller took her eyes from the inspection window then and bent to concentrate on turning the manual control. She strained at it, red-faced from the wholly uncalled-for language which had been used on her as much as from her exertions.

Abruptly the control locked fast and an indicator above it blinked "Outer Seal Open." There was a whooshing noise which diminished rapidly into silence. Through the inspection window Miller was in time to see the flare of the Life-capsule's motor receding in a long arc at full power. As it curved out of sight she shook the locked control angrily and felt an urgent desire to burst into tears.

But maybe things were not all that bad, she told herself consolingly. True, Gordon had seen a little of the ship before escaping, but what really had he found out beyond the fact that Billy had a rather childish personality and that certain sections of the Ship's interior were colour-coded with garish check and diamond patterns?

The answer was an awful lot.

If Gordon had not been himself a psychologist, then trained psychologists would shortly be questioning him under drugs which allowed total recall. In those circumstances a few facts plus a little imagination could give the whole game away.

Her thoughts were dramatically interrupted by a crash which sounded like the Crack of Doom, but with tinny overtones—she had never before heard anything like it. From nearby came the suddenly frightened cries of Danny and

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Billy. The ship had been holed, obviously, but Miller could not hear the hissing sound which would have told of air escaping in the vicinity. She called out reassuringly, "Emergency Drill, boys! Get into your spacesuits."

A clause in Space Regulations stated that interplanetary ships must carry sufficient spacesuits so that, should an emergency arise in any part of the vessel, a crew-man trapped therein could reach one and don it within two minutes. This meant that there was a spacesuit to be found in every ten yards of corridor and up to six in any compartment where the *Starfire's* crew were likely to gather, not counting the dormitory supply. There was no shortage of suits, Miller thought grimly as she struggled into the tight-fitting plastic and sealed it all but for the face-plate. The trouble was that her crew could not be trusted to use them properly, if at all. She would have to check that first before she could start thinking about whatever catastrophe it was which had overtaken the ship.

It had not sounded like a meteorite, somehow.

Danny was talking to a scared-looking Billy when she came up to them. He was saying scornfully, " . . . And anybody knows it's not a *real* emergency. It's a test. But if you start being a sissy, shouting and crying that you want to get off, then when we get to run real live spaceships they won't let *you* on . . . "

He broke off as he saw the Captain and went red with embarrassment. "I'm sorry," he mumbled awkwardly.

"That's all right," Captain Miller said, allowing her tone to sound hurt. "I've suspected that some of you think that this isn't a real ship, but that is a matter for the boys concerned—I shall not tell them whether they are right or not." Her eyes ran over the two space-suited figures, noting that less than half the seals were fastened properly, and the helmets were not even connected. She went on sternly, "Let me remind you, however, that whether you believe this to be a real ship or not, the outside is probably a vacuum, or at least at an uncomfortably low air pressure.

"You have been trained in the use of spacesuits. See that the ones you are wearing now are sealed, and *properly!*"

She brushed angrily past them and headed in the direction from which the crash had come.

Danny and Billy were undoubtedly deeply hurt by her tone. She could console them later, if necessary. At the moment

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they were unaware of how lucky they were. They did not have to bear the responsibility for a multi-million pound ship, a crew of four highly-immature adults and the safe delivery of thirty-odd passengers. She went suddenly cold. Supposing the crash had been in the passenger dormitory? Her mind tried to shy away from that thought, but could not quite manage it.

If only she could be like the crew, just playing at spaceships. Suppose this was just an elaborate test after all, a test for intending psychologist-Captains as well as of their crews? If she *pretended* to worry, went through the motions, but secretly aware that nobody was going to die or be hurt . . .

But no, Miller told herself savagely, she recognised that kind of thinking for what it was, an attempt to escape reality; madness. The reality was that she was Captain of a damaged —to an as yet unknown extent—spaceship en route between Mars and Earth, and with the safety of some forty souls in her hands. It was not a very nice reality, but there it was.

She passed through two bulkhead doors on the way forward before coming to one which, because of a difference in air pressure on the other side, would not open. The damage was in the next compartment, then. There was a transparent panel in the bulkhead door. She peered through it.

Because of the danger of secondary radiation from cosmic rays the hull plating was kept thin, but it was extremely tough. A few yards from the bulkhead Miller could see where one of the superhard alloy plates showed a distinct bulge inwards, and at the centre of the bulge a small, jagged hole through which protruded what looked like a six-inch length of buckled piping. In the immediate vicinity hoar frost had formed showing where air was escaping to space. It looked for all the world as though *Starfire* had been stabbed with a length of piping; Miller could make nothing of it at all. Then her eyes travelled further into this punctured section of corridor, and she felt herself shiver involuntarily.

This was the stretch of corridor leading into the passenger dormitory, and she could see where the air-tight door of the dorm had closed automatically, as it was designed to do, an instant after the corridor had been opened to space. But when Gordon had been escaping he had discarded the plastic harness used to keep him in his hammock during free fall. It had drifted across the threshold of the door so that it had been unable to close properly. At one corner Miller could see a hair-thin line of frost beginning to form.

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The passenger compartment was losing air, too.

There were over thirty passengers in there, she thought in agony as she made for the nearest communications point; thirty people drugged into sleep and utterly helpless. What good were spacesuits to sleeping men?

When she raised the Control-room Miller had to quell an incipient panic there as well before she was in a position to have her instructions carried out. But eventually she said, "Chris, train a vision pick-up on the air-supply panel of the control board like a good boy, and connect it so's I can see it from back here. I want to check on something."

She squinted into the tiny view-screen before her at the needles which registered air supply and density all over the ship. Only the punctured section was airless, but the dormitory was losing it at a slow but steady rate. She did some fast mental arithmetic and decided that the passengers, being reasonably healthy specimens, might be able to live and breathe for a little more than an hour.

And Danny, Billy and herself were cut off from the forward section of the ship. She could lead them across the outer hull in their spacesuits, of course, there were personnel locks conveniently placed for that to be possible. But the crew's conditioning was not meant to stand against a test like that. Space to them was some rather uninteresting lights outside windows in the hull which were used occasionally in conjunction with astrogation tables. Confronted with the stars all around them . . . Well, she would probably end by leading in two empty-eyed things which had once been men.

But the thought of what might happen to her crew—even of what would happen to Danny—did not bother her half so much as the picture she had of the passengers. There were spacesuits all around them, but they lay there in their hammocks, drugged, slowly strangling to death in their sleep. They were not scheduled to wake up for another three hours, so there was no hope of them being able to help themselves. They were just not due to wake up. Period.

Gordon getting away had been bad enough, but when *Starfire* arrived with thirty frozen, blue-faced corpses aboard, that would be the end of the Company for sure. Yet somehow Miller could not feel very strongly for the Company, not now.

Ten yards away a lot of people were dying without knowing about it, and if they died she would die, too. Not physically, maybe, but with her nature and training the loss of those

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people would affect her only slightly less than if her "boys" in the crew were to be wiped out to a man. Empathy, the maternal instinct, whatever people chose to call it, could be a double-edged weapon.

"There's a puncture in the hull!" Danny's voice broke in on her suddenly. "How do I get in? I'm supposed to fix things like that, you know."

Miller watched Danny tugging at the handle of the air-tight door for several seconds before it dawned on her that here was the answer, the problem and its solution stated in two short sentences. In sudden excitement, she said, "You can't open it because there is no air on the other side. But you can drill through it, letting the air out of this section and so equalise pressure. It would open then.

"The airtight door behind us would automatically seal itself then, but before drilling we could bring up repair tools to fix the puncture. We would be safe inside our suits while you did the repair job, then when it was finished I could get the Control-room to bypass the safety cut-off and pump air back into these two evacuated sections, and everything would be all right again . . . "

Miller felt like kicking herself for the scare she had thrown herself into. Women might be practical in many ways, but they were not good mechanics. And men thrived on mechanical problems and in learning the skills necessary to solving them. Women did not. Had that not been so, space-ships might have been flying crewed entirely by females.

Danny had his suit helmet pushed back and his face pressed against the inspection window. Suddenly he turned away from it, looking frightened. He said, "I - I can't do it. I can't go in there. You know I can't."

But of course! The holed section was painted a vivid black and white diamond design. Of the crew only Billy and herself could go there. The others were conditioned against it as a precaution against them accidentally running across normal adults during a swop-over. It was on the tip of her tongue to tell Danny about the plight of the passengers and order him to do the job, but she knew that it would be useless. The conditioning was thorough.

But the idea was still workable, it must be. If it was not, then there was one way that Danny could enter the holed section and repair it . . .

She pulled her mind away from that idea, fast.

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"How about Billy doing it?" she said suddenly. "You can instruct him from here. He's allowed in there, you know."

"Billy can't use a welder," Danny stated. "It's tricky. He'd probably burn his own feet off."

Miller's heart seemed to be stopping, paralysed by the dread that was growing in her. She said desperately, "If you explained it to me, could I do it?"

"Maybe," Danny said, obviously embarrassed at having to tell the Captain that there was something he could do better than her. "You'd have to practice a lot first. In a couple of days, maybe . . ." His voice mumbled into silence.

Miller pressed her hand over her eyes to hide from Danny and Billy the struggle that was raging in her mind. Despite her duty as Captain to treat each member of the crew with the strictest impartiality, she knew that she was selfish enough—weak enough, rather—not to do this thing to Danny if another crew-man would have served in his place. But only Billy, the steward, and herself could enter the holed section, and both were useless for the job. Jimmy, the other Engineer, was out of reach in the Control-room.

There was the intercom, of course, but even with a vision link-up it was impossible to de-condition a man in that manner. It had to be Danny or no-one.

But was it true, she asked herself desperately, that she did not want to de-condition Danny, the man she had been forcing herself to think of and to treat as one of her "boys?" It had been a terrible strain maintaining that pretence, much worse than she had believed it was possible for her to stand. Was the truth not that she wanted this man as the intelligent, strong and infinitely reassuring adult that he really was instead of a hulking four-year-old? Maybe there was a chink in her mental armour, maybe she was no longer suited for this work . . .

Only in the worst possible emergency was she supposed to de-condition a member of the crew. The shock of a normal adult personality emerging suddenly into the, to him, nightmare environment of a ship in Space could very easily destroy that personality there and then. And if it did not do so, then by the accident of sheer curiosity the person would look out into Space. Everybody knew what happened then.

No prior emotional attachments . . .

Miller took her hand away from her eyes and said gruffly, "Billy. There's a tool cabinet near the Life-capsule bay. I

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want the welding gear, and bring a few spare oxygen tanks for our suits." She turned quickly. "Danny, come over here beside me. Real close. And watch my eyes, there's a good boy."

Danny did as he was told: he must have thought it some new kind of game.

If he takes the awakening shock all right, Miller swore to herself, *I'll make sure Space doesn't get him if I have to . . .* Aloud, she began the timed combinations of keywords that would replace Danny's four-year-old personality with his true one. As she finished he gave a convulsive wriggle and his hand drifted away from the wall-net which he had been holding. If there had been gravity he would have collapsed. He swallowed several times, looking around him wildly, then burst out, "Hey! We're on a *spaceship!*"

There was astonishment in his eyes, and excitement, but that was all. He was all right so far. Miller saw him looking at her uniform collar visible above the helmet line of her spacesuit and forestalled the questions by speaking first.

"Yes, we're on a spaceship," she said quickly. "Now listen carefully, please, we've very little time . . ." She began to explain the predicament they were in and the conditioning of the crew which was partly the cause of it. She told everything. She ended by trying to apologise for restoring his adult personality in an environment which was all too likely to cause its destruction.

He waved that aside, then, looking shrewdly into her face he said, "You've had a tough time with me being on your ship, quite a strain, eh? Better for all concerned if you keep calling me Danny, don't you think?" He trailed off as his eyes took in the various items of equipment around him. "I'm glad it was me," he said suddenly. "A real ship! I wouldn't have missed this for the world."

His eyes came back to her admiringly. He went on, "I knew I was spacecrew, of course, we all did. But we never remember being on a trip. One day we go into the briefing hall and four or five weeks later we come out again—though we think no time at all passes—and somebody tells us we've been on a trip. The paycheck proves it, too.

"But I never suspected that you were spacecrew, too. How does it feel to be an intrepid spacewoman?"

"I haven't time to tell you, even if I could," Captain Miller replied, strain putting a harsh note into her voice which she had not wanted to be there. "The passengers, remember?"

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Danny said, "I'm sorry."

"No matter. But I hear Billy coming with the welding gear. When he arrives, don't say anything at all. Pretend to be sulking about something—I won't ask you direct questions and you can simply ignore him. You see," Miller explained, "your voice has deepened and there are marked changes in your face and carriage. While talking to the others would not break their conditioning, it certainly would make them feel frightened and unsure of themselves. So stay quiet and sulk, OK?"

Danny nodded, suppressing a smile, and turned to examine the hull puncture through the inspection panel. Miller relieved Billy of the welding equipment and began checking that his suit was sealed in readiness for the moment when the section they were now in would become airless. She was convinced that her worries regarding the passengers were practically over. And she had an idea for keeping Danny safe, too.

When the puncture was fixed she would tell Billy that Danny was sick, and was to be treated as a passenger for the rest of the voyage. He would occupy Mr. Gordon's hammock—Mr. Gordon having gone away—and take sedation with the rest of them, and have no contact with the rest of the crew whatsoever. That would take care of Danny all right, though he would be like an old bear towards her for not allowing his adult personality to see all over the ship. But when the Company psychologists got at him when he returned, he would cease to remember that he had even been de-conditioned on this trip.

A better way would have been simply to convert him into an emotional four-year-old again, but that type of work could only be done properly on Earth where the right facilities were available.

A tap on the shoulder made Miller turn sharply. Danny had his helmet in place and was motioning her covertly to do the same. Puzzled, she did so.

"I had to talk to you," his voice squeaked from the helmet ear-phones. "It's about the puncture. It can't be fixed from inside. I'll have to go onto the outer hull."

"*No!*"

"But I'll have to. What hit us anyway? It wasn't fast enough to make a clean puncture, and yet it had enough mass to push a hole through the plating. The edges of the hole

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are turned in and jagged—unsuitable for patching without first cutting and planing down, and that couldn't be done in time to save the passengers. That metal is *tough*. The only way of fixing an air-tight patch over it, without completely replacing the hull plate, is to weld it on from outside."

He sounded completely sure of himself: there was no other way in which it could be done.

"You can't go outside in your present mental condition," Miller said desperately. "There must be some other way."

Danny's head shook inside his helmet. "I know what's supposed to happen to men who look at Space. I'll be careful. We could fit some type of blinker arrangement to my helmet so that I could see just a small area directly ahead, and I'd keep my eyes on the hull the whole time. I'll be all right," he ended drily, "and I promise not to peek."

Miller tried to argue. She advanced many wild and totally unworkable ideas. She had to stop when the rather hurt and puzzled Billy started putting on his own helmet to hear what all the talking was about. Danny had the last word.

"The passengers, remember?"

They left Billy at the bulkhead door adjoining the holed section with instructions to drill through it when they signalled that the repairs were completed. Air would then fill the damaged compartment giving a check that the repaired hole was not leaking before Miller ordered the Control-room to equalise pressure there. It was on the way to the small personnel lock that Miller made the decision to accompany Danny onto the hull. Only by doing that could she make sure that his curiosity did not get the better of him.

At the entrance to the stern airlock Miller painted out Danny's face-plate, with the exception of one half-inch slit at eye-level. This she covered with a double turn of thick webbing. She then checked communications with Billy and the Control-room, warned Danny against touching his blindfold until she told him it was safe to do so, then led him out.

It was the first time Miller had been outside the ship during flight—it was supposed to be unnecessary for anyone to walk the outer hull at all. But the *Starfire* was packed with safety devices for use in the most highly unlikely circumstances, so all suits were equipped with magnetised boots, wrist-and knee-plates as a matter of course. Miller was surprised how quickly she was able to slide herself along the hull, even with the blindfolded Danny in tow. And when she moved beyond

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the shadow of the port stabiliser, she was surprised again. Unpleasantly.

Mr. Gordon had returned.

It was plain what had happened now. The Life-capsule in which the escaping passenger had left so hurriedly had returned. Like some diminutive swordfish attacking a whale it had rammed the side of the *Starfire* at full acceleration, penetrating the super-hard hull with its fixed rod antenna. As well as puncturing the hull the crash had forced the greater part of the antenna, together with its mounting, backwards into the Life-capsule like an irresistible piston. The things it had done to their late passenger were not pleasant. Miller felt suddenly sick.

Pieces of the capsule's transparent canopy still clung to the wreckage, some of them smeared with paint. Looking at them and remembering Gordon's last angry words to her—swear words, mostly—Miller realised something which made her feel even worse. She, herself, was responsible for Gordon's death.

When she had been working the manual control of the Life-capsule bay, Gordon must have thought that she was trying to kill him by opening the bay to space instead of opening the inner door as she had been trying to do, hence the foul language. He had panicked and left in the Capsule before its transparent canopy was fully blacked out. Space had taken him just as he was beginning the curve backwards which would eventually have taken him to the ship following in their wake. His time-sense paralysed, held like a bird by the mesmeric stare of a snake, Gordon's mind was already dead before that initial curve became the full circle which smashed him into the mother ship's flanks.

There was a cruel sort of justice about it, Miller thought wildly. She had caused Gordon's death. Had Gordon returned to bring about the mental destruction of Danny, her . . .

"What's wrong? You're talking, muttering to yourself. Something about retribution. Retribution for what?" Danny's voice was brusque and just a little frightened. Instinctively his hands had gone up to the blindfold. "What's happening, I can't see?"

"*Don't!*" Miller cried. "Keep your hands down! I'll tell you what has happened . . ." Speaking quickly she described the situation, then concluded, "The antenna rod has gone

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through the hull plate. It's twisted on the inside, so we'll have to work the capsule around a bit to pull it free. It will be quicker that way than by sawing through the rod, I think.

"Now," she went on quickly, "there's no reason for you to see what you're doing just yet. I'll guide your hands to a good grip, then when I tell you, lift."

They tugged and strained for several minutes trying to pull the obstruction free, but in vain. Miller was glad that they were not using the suit radios at the time, but a three-yard length of cable connecting their helmet 'phones direct—a sealed, two-way communications system. The other members of the crew would have wondered at all the sighing and grunting being broadcast. Danny took a deep breath and said, "All right, we'll try again. One, two, three, hup!"

There was the *snap* of the antenna rod breaking, the sound transmitted through their metal boots, then everything happened very slowly.

Like in a nightmare.

The battered Life-capsule broke free of the hull and rose ponderously upwards. Caught off-balance Miller fell over backwards, but managed to keep one foot and one arm-magnet in contact with the hull. It was not so with Danny. Danny had a good grip on the capsule, so good in fact that he was unable to disentangle his fingers when it began moving away from the ship. Slowly, at a speed of no more than three inches a second, it pulled him away with it, the resistance of his magnetic boots scarcely slowing it down as they parted from the hull.

Miller, with the frantic slowness necessary if she was not to lose contact with the ship, struggled to her feet and made a grab for his retreating legs. But Danny was kicking, a purely reflex action, and her hand was knocked away. At that moment the lead joining their helmets was jerked from its socket and all contact with him was lost.

Just out of reach she saw Danny wrap his legs around the middle of the capsule, let go with one hand, then reach up towards his blindfold with the other. Miller found that she had launched herself towards him without even thinking about it.

Her helmet struck his shoulder. Her arms wrapped themselves around his body at elbow level, the instinct to hold on to something lending them desperate strength. He was temporarily unable therefore to uncover his face-plate.

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Miller pushed her helmet against his, reassuring him desperately — though she felt in dire need of it herself — and begging him not to look out and so leave her all alone. With a shock she realised that she was crying. But when her hand found the disconnected helmet lead and plugged it in again, her voice was almost back to normal.

"We're only about twenty or thirty feet from the ship's hull," she said, forcing a note of confidence. "Now if you just stand up on this thing I'll point you in the right direction, and all you need do is jump. Not too hard, of course—"

"I'm not jumping anywhere. Not unless I can see where I'm going."

He was very definite about it. His grip on the Life-capsule tightened. The ship crept further away.

Their safety lines—all eighty feet of them—were attached to lugs inside the personnel lock. They were not therefore, completely detached from the ship. At the moment their outward movement had been arrested by the safety lines and they were slowly travelling the arc of a circle which had the lines as its radius. Eventually they would wind themselves back onto the ship. Or maybe, she thought, remembering the passengers, they could climb back along the lines and save time. It would be hard to get a decent grip on the thin nylon lines with the suit gauntlets, but. . .

She was about to outline this plan to Danny when she mentally bit her tongue. It was not necessary to climb back along their safety lines. They would get to the hull again fast enough. Far too fast.

They were circling *Starfire* on the end of an eighty foot line, moving at a relatively slow speed. But their radius as the line wound itself around the hull was being shortened steadily, which meant that their speed was steadily increasing. Miller could not work the answer out in her head, but she suspected that they would arrive on the hull so quickly that they might not live through it. If the impact did not kill them outright it must certainly crack their suits.

She refrained from mentioning any of this aloud.

Miller watched the *Starfire's* almost imperceptible rotation eighty feet below them. Then it was fifty feet beneath them and moving appreciably faster. They spun faster and nearer. She kept telling Danny that everything was all right, when secretly she wanted to cling to him and cry, as she used to do, for him to protect her and not let anything hurt or

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frighten her. They kicked free of the Life-capsule, then the individual plates of the hull were beginning to blur with speed and they were ten feet away. They struck.

Only one thing saved them. The safety lines, now wound together, had been caught loosely over one of the stabilisers. In the instant before they struck the line had slipped off the projection, thus allowing them more line just when they needed it most. The result was that they struck the hull at a relatively shallow angle and slid forwards until the tightening line brought them up with a jerk. Miller felt as though she was one great bruise, but nothing seemed to be broken. And Danny was all right, too. His choice of words while telling her so was lurid.

"Listen carefully," Miller broke in. "Walk in the direction you're pointed for twenty paces, that will bring you close to the puncture. I'll fetch your welding gear from the air-lock and bring it to you. We've got to *hurry!* But whatever you do, *don't try to see where you're going.*"

"I won't," Danny said. He was breathing heavily.

Five minutes later his blindfold was off, but his eyes were on the section of damaged hull plating and on the bright blue flame of the welder. Miller stood over him, but with nothing to do but watch that his attention did not stray away from his job, her mind began to slip back to her main problem. Or was it a dilemma, an insoluble problem that, far from wanting to solve, made her want to go away to some dark, quiet place and hide and forget it all. . ?

She was convinced that the passengers were already dead. They must have died while Danny and herself had been interminably circling the ship on their safety lines. There would be an investigation that would very likely end in the criminal courts. Thirty people dead because the Star Line method of operating their ships could not cope with a one-inch hole in the hull in time to save them. That was not quite accurate, the passenger Gordon was the true cause of the disaster, but they would not look at it that way on Earth—their rivals would see to that. They would say that Captain Miller was solely responsible for her ship and those within her, and that Captain Miller was guilty of multiple manslaughter. And the trouble was that even if they acquitted her, she would feel herself guilty for the rest of her life anyhow.

She had no friends. The big, warm-hearted man so grimly working at the hull beside her would not want her after this,

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nor *his* father. She had ruined them both, three generations of space-travellers, even though the last was the only one to actually see Space. . .

It was very, very black when you didn't look near the Sun, and between the stars there was plenty of room to hide. It was funny, but she had never really looked at the stars before. . .

Velvet blackness and stars were all around her, then they flicked out of existence to be replaced by the interior of the stern air-lock. Like frames picked from a film at random and thrown onto the screen at normal speed, various sections of the ship flickered into being around her and were gone again. In most of the frames a white-faced and sweating Danny was bent over her, holding her in his arms and trying desperately to tell her something. *Why*, she found herself thinking bemusedly, *this shouldn't happen to me, I'm a woman!* Then: *I've been Space-gazing—my time-sense is all snarled up. . !*

Miller opened her eyes again to find herself still held protectively by Danny. She giggled suddenly, and said, "I feel silly calling you Danny, as if you were a kid."

The grey, tensed face above her relaxed, but only slightly. It still looked much older than its forty-five years. He said with a great sigh of thanks, "So you're back. I thought I'd lost you altogether. But listen. I don't know what happened to you exactly, I'm no psychologist, but it seems to me that you had an insoluble problem and worked yourself into a case of space neurosis to escape it. Well forget it. The passengers are all fine, everything's fine. We weren't outside the ship more than half an hour, no matter how long it felt like. So your problem is gone. Understand?"

The eyes looked long and searchingly into hers, found what they were looking for, and the fear went out of them. He said gruffly, "You're all right now."

Miller replied by throwing her arms round his neck and bursting into tears. She felt wonderful.

"There, there," he said, holding her awkwardly because it was a great many years since he had held her like that. "You've had a bad time this trip, I'm not surprised you cracked a little. Imagine foisting me onto you and expecting you to treat me like a son along with the rest of them—me, your own father. It was enough to tie that alleged mind of

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yours into granny-knots. And the Gordon accident on top of everything else. . ."

"Look," he went on softly. "The psychological balance of this ship's crew is shot to h——, er, excuse me. The crew still need you, but you need somebody to lean on a little yourself as well. Don't you think that I could fill that little job? You keep the crew in line, and I keep you from running off the rails. It will work, you know. I won't go space-gazing after seeing what it nearly did to you, be sure of that!"

For the first time since leaving Earth Captain Miller felt herself really begin to relax. This was going to work, she knew it was, but there would still have to be precautions taken. She said, "You'll have to sleep most of the time, Dad. And keep out of the way—"

She broke off as the intercom buzzed imperiously. Her father's surprised grunt was drowned by the wailing voice of Chris blaring loudly from it.

". . He broke it! He broke it! Jimmy did it! He wound it up too tight and the spring broke and . . . and now we can't play aeroplanes or trains or anything and he said he'd be careful and he's a dirty sneak and . . . and . . ."

At that point the *Starfire's* Communications Officer burst into tears.

Captain Miller sighed, then forced her stiff and aching muscles to propel her in the direction of the Control-room. "Spacetravel," she muttered resignedly, "is just one blasted crisis after another."

She could hear her father laughing softly as she left.

James White

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